Platform public-sector?
Local authority innovation, the sharing economy, and delivering a transition to urban economic sustainability

Phil Northall

Thesis submitted to the University of Nottingham
for the degree of Doctor of Philosophy

April 2020

Total Word Count: 93,210

TABLE OF CONTENTS

i. LIST OF TABLES **ix**
ii. LIST OF FIGURES **x**
iii. AUTHOR'S DECLARATION **xi**
iv. ACKNOWLEDGEMENTS **xii**
v. ABSTRACT **xiii**

1 INTRODUCTION **1**

1.1 Aim 1: Develop a Theoretical Understanding of Urban Economic Sustainability **3**

1.2 Aim 2: Investigate the Sharing Economy as a Business Model That Can Deliver a Transition Towards More Sustainable Cities **6**

1.3 Thesis Structure **10**

2 TOWARDS AN UNDERSTANDING OF URBAN ECONOMIC SUSTAINABILITY **12**

2.1 Working at the Urban Scale **14**
2.1.1 Historical and critical theories *15*
2.1.2 Towards a planetary urbanisation *18*
2.1.3 The 'first' urban revolution *20*
2.1.4 Ordinary cities *22*

2.2 The Economic Context **23**
2.2.1 Economics as an evolutionary science *23*
2.2.2 Schumpeterian innovation dynamics and entrepreneurial energy *26*
2.2.3 Bounded rationality, agency, and structure *27*
2.2.4 Evolutionary economic geography (EEG) *28*

2.3 Examining System Innovation Through a Multi-Level Perspective (MLP) **30**
2.3.1 The niche, regime, and landscape *31*
2.3.2 Technological transitions (TT) *32*
2.3.3 Urban-scale transitions *33*
2.3.4 Transitions to sustainability *34*

2.4 The Sustainability Context **35**
2.4.1 Background in sustainable development *36*
2.4.2 Steady state economics and strong versus weak sustainability *36*
2.4.3 GDP, well-being, and measuring success *37*
2.4.4 A diverse economies approach *39*

2.5 The Sharing Economy as a Potential New Pathway to Sustainability **41**
2.5.1 A research agenda for the sharing economy *41*
2.5.2 Drivers of the sharing economy: sharing *42*
2.5.3 Drivers of the sharing economy: prosumption and collaborative consumption *43*
2.5.4 Drivers of the sharing economy: digital technologies and networks *45*
2.5.5 Drivers of the sharing economy: platforms and reputational capital *46*

2.6 What is Urban Economic Sustainability? **47**
2.6.1 Policy context: sustainability in cities *49*
2.6.2 Policy context: local government austerity *50*

3 RESEARCHING URBAN ECONOMIC SUSTAINABILITY IN THE UK **52**

3.1 The Nature of Knowledge Production in Geography **54**
3.1.1 Statement of positionality *55*
3.1.2 The difficulty of wicked problems *56*
3.1.3 The public-sector behavioural environment *58*
3.1.4 The influence of cultural circuits of capital and chaotic concepts *60*
3.1.5 Developing innovation in the public-sector environment *61*

3.2 A Systematic Review of the Sharing Economy **63**
3.2.1 The process of systematic review in the social sciences *64*

3.3 Primary Research Design and Methods **66**
3.3.1 Interviewing elites - gaining access *67*
3.3.2 Interviewing elites – trust and rapport *68*
3.3.3 Semi-structured interviews with local authority practitioners *69*
3.3.4 Longitudinal case studies *70*

4 CONDUCTING SYSTEMATIC REVIEWS AS A POLICY ANALYSIS TOOL IN GEOGRAPHY **73**

4.1 Abstract **74**

4.2 Introduction **74**

4.3 The Traditional Literature Review **75**
4.3.1 Qualitative research and the traditional literature review *75*
4.3.2 Systematic reviews in context *78*
4.3.3 Meta-analysis of systematic reviews in the literature *81*

4.4 The Process of Systematic Review **83**
4.4.1 The Cochrane Review *84*
4.4.2 Systematic reviews in the social sciences *86*
4.4.3 Limitations of systematic review *89*

4.5 A Systematic Review of the Sharing Economy **90**
4.5.1 Research Question *92*
4.5.2 Inclusion Criteria, Search Strategy *92*
4.5.3 Screening & Appraisal *93*
4.5.4 Synthesis using thematic mapping *93*
4.5.5 Results & Dissemination *94*

4.6 The Changing Nature of Knowledge Production **94**

4.7 Conclusion **96**

5 CATEGORIES AND CLASSIFICATIONS IN THE 'SHARING ECONOMY': A SYSTEMATIC REVIEW **97**

5.1 Abstract **98**

5.2 Introduction **98**

5.3 Methodology **100**
5.3.1 Systematic Literature Review *100*
5.3.2 Thematic Mapping Process *101*

5.4 Results **102**
5.4.1 Enabling technologies *107*
5.4.2 Social dynamics *109*
5.4.3 Business models *111*
5.4.4 Impacts *114*

5.5 Discussion **118**
5.5.1 Limitations and further research *119*

6 PLATFORM PUBLIC-SECTOR?
USING SHARING PLATFORMS TO DELIVER PUBLIC SERVICES
AND SOCIAL VALUE IN ENGLISH CITIES UNDER AUSTERITY **121**

6.1 Abstract **122**

6.2 Introduction **122**

6.3 Understanding Sharing Platforms **123**
6.3.1 The sharing economy *124*
6.3.2 The platform economy *125*

6.4 Cities Under Austerity **127**

6.5 Can Sharing Platforms Be Used To
Deliver Public Services More Effectively? **129**
6.5.1 What sharing platform activity
is currently taking place? *133*
6.5.2 What opportunities exist for sharing platforms
to deliver public services? *136*
6.5.3 Barriers & Enablers:
The local authority as the platform *138*

6.6 Delivering Economic Sustainability:
Striving For Merit Goods **142**

6.7 Conclusion **143**

7 A MULTI-LEVEL PERSPECTIVE OF PUBLIC-SECTOR
INNOVATION: CASE STUDIES OF ACCESS PLATFORMS
IN TWO ENGLISH LOCAL AUTHORITIES **145**

7.1 Abstract **146**

7.2 Introduction **146**

7.3 Local Authorities Under Austerity **147**

7.4 Public-Sector Innovation **148**

7.5 A Multi-Level Perspective (MLP) **150**

7.6 Using Access Platforms To Deliver Economic Sustainability: Two Case Studies **153**

7.7 Developmental Similarities **160**
7.7.1 Technology and funding *160*
7.7.2 Human resources *160*
7.7.3 Marketing and promotion *161*

7.8 Shared Challenges **161**
7.8.1 Sustaining the platform beyond initial funding *161*
7.8.2 Competing/comparison with incumbent commercial platforms *162*
7.8.3 Difficulty measuring impact or selling the social or environmental value *163*
7.8.4 Lack of local buy in and no investment from host authority *163*
7.8.5 Shifting political and senior level support *163*
7.8.6 Loss of dedicated teams and responsibility passed to broader departments *164*
7.8.7 Potential transfer of ownership to the community *165*
7.8.8 Emphasis on larger geographical scale/critical mass *165*

7.9 What Can Be Learned From These Case Studies? **166**

7.10 Supporting Future Public-Sector Niches And Transitions **169**

8 DISCUSSION & CONCLUSION **171**

8.1 Aim 1: A Theoretical Understanding of Economic Sustainability **173**
8.1.1 Economic sustainability as mediator of social And environmental trade-offs *174*

8.2 Aim 2: Investigate the Sharing Economy as a Business Model That Can Deliver a Transition Towards More Sustainable Cities **176**
8.2.1 Identifying and implementing access platforms *177*
8.2.2 Primary pressure: local government innovation regime *179*
8.2.3 Primary pressure: public-sector austerity *180*
8.2.4 Primary pressure: local authority platformisation *182*

8.3 Impacts **183**
8.3.1 Primary pressures create enabling authorities that constrain transitions to sustainability *183*
8.3.2 Support for intermediary development of local authority innovation *184*
8.3.3 Access platforms offer a route to sustainability but are unlikely to be adopted as a term *185*
8.3.4 Academic challenges and contributions *186*

8.4 Conclusion **186**

9 REFERENCES **188**

10 APPENDICES **224**

APPENDIX 1: Email Invitation Sent To Potential Participants **225**

APPENDIX 2: Participant Information Sheet **227**

APPENDIX 3: Participant Consent Form **230**

APPENDIX 4: List Of Papers Included In The Systematic Review **231**

i. LIST OF TABLES

2.1	A conceptual framework of urban economic sustainability	47
3.1	The seven stages in carrying out a systematic literature review	64
3.2	The six phases of a thematic analysis	65
3.3	List of coding nodes adapted from multi-level perspective criteria	71
4.1	Sections of the protocol for a Cochrane review	85
4.2	The seven stages in carrying out a systematic review	86
4.3	The seven-stage process of systematically reviewing the sharing economy	91
4.4	The six-stage process of thematic analysis as utilised in the systematic review of the sharing economy	93
5.1	The seven-stage process of a systematic literature review	100
5.2	The six-stage process of thematic analysis	101
5.3	Breakdown of systematic review papers, by discipline	103
5.4	Breakdown of review papers, by year of publication	103
5.5	List of most prevalent alternatives terms used for, or in conjunction with, ‘sharing economy’	104
5.6	Factors for narrative analysis by frequency and related factors	105
5.7	Conception of platforms in the sharing economy literature	108
5.8	Typology of P2P from the systematic review papers	109
6.1	A typology of platforms	126
6.2	List of local authorities involved in interviews	131
6.3	Most cited sharing activities	133
6.4	Most relevant sharing activities	135
6.5	Most cited sharing opportunities	137
6.6	Most cited barriers to opportunities	138
6.7	Most cited enablers of activity	139
7.1	Innovation and improvement in different conceptions of governance and public management	149
7.2	List of coding nodes adapted from multi-level perspective criteria	155
8.1	Access platforms identified by and developed with local authorities	178
8.2	Extension of Hartley’s innovation and improvement in different conceptions of governance and public management	183

ii. LIST OF FIGURES

1.1	The diverse economies iceberg	5
2.1	A dynamic multi-level perspective on technological transitions	30
3.1	The phenomenal and behavioural environment of a decision-taker	59
3.2	Research design	66
4.1	The literature review process	78
4.2	Top 10 research areas for systematic reviews on Scopus, all time	82
4.3	Number of systematic reviews by selected research areas on Web of Science, over all time	83
5.1	Frequency of factors, by percentage of papers they are included in	102
5.2	Use of search term 'sharing economy' worldwide over time	103
5.3	Simplified thematic mapping of most common factors in the sharing economy literature	105
5.4	Most frequent factors, organised by theme	107
6.1	Research Design	129
6.2	Map showing the regional locations of the local authorities interviewed	132
6.3	Words used to describe the 'enabling' role of the local authority	141
7.1	A dynamic multi-level perspective on technological	151
7.2	A success story on Share Peterborough highlighting impacts of the share	159
8.1	Pressures producing enabling authorities that constrain transitions to sustainability	173
8.2	Economic sustainability as optimising environmental and social sustainability	175

iii. AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the Regulations of the University of Nottingham. The work is original, except where indicated by special reference in the text, and no part of the dissertation has been submitted for any other academic award. Any views expressed in the dissertation are those of the author.

SIGNED:



DATE:

1st April 2020

iv. ACKNOWLEDGEMENTS

Thank you, first and foremost, to my supervisor Prof Sarah Hall whose guidance, both academically and psychologically, has enabled me to succeed in bringing together this piece of research to a standard that I could not even have imagined without her. Similar thanks must go to the rest of my supervisory team, including Dr Stephen Parkes, Dr Pelin Demirel, and Assoc Prof Shaun French, along with my internal assessor Prof Andrew Leyshon, who have all provided valuable insights and feedback that have shaped this research from the outset.

My research would not have been possible without the Laboratory of Urban Complexity and Sustainability (LUCAS) and the efforts of Prof Darren Robinson and Asst Prof Yong Mao in securing the necessary funding and directing the project. As such thanks must also be extended to The Leverhulme Trust for financing this research and providing the academic freedom with which to pursue it. I am also grateful to all the participants who provided their time freely and generously and whose expert insights enabled this work to happen. Special thanks to the contributions from Comoodle and Kirklees Metropolitan Borough Council, and Share Peterborough and Peterborough City Council. This research would also not have been possible without the continued administrative support from staff in the School of Geography, with notable mentions to Lauren Trevatt for responding to the barrage of inane questions that I sent her way, and to Sue Davis for being a constant source of camaraderie in the School. I am hugely grateful to all my colleagues at both LUCAS and in the School of Geography who provided daily advice, guidance, and emotional support, and who (mostly) tolerated the torrent of terrible jokes that I provided in return. Special mention must go to Ben Purvis, Hannah Keding, Ashley Lewis, and Dr Ana Sancho-Tomas.

Finally, to all my family and friends who have helped me to reach this position and who have shown such interest in my work, and continued support to allow me to achieve it. Special thanks to my Mum, sister Bev, and brother Martyn, and particularly kochanie Monisia, whose never ending positivity and patience allowed me to complete this work in one piece. I would also like to acknowledge the contribution that my Dad made to my earlier life and how all his advice (and humour) has followed me to this day. I dedicate this research to him.



University of Nottingham
UK | CHINA | MALAYSIA

LEVERHULME TRUST

v. ABSTRACT

In seeking to better understand how the sustainability of cities can be improved, this thesis found that English local authorities struggle to nurture innovation - specifically sharing platforms - due in part to their own process of platformisation, which involves a shift away from delivering services to acting as intermediary between service users and potential providers. Allied with public sector austerity and a non-conducive local government innovation regime, these factors lead to a new form of pubic management, the 'enabling authority'. This contemporary form of local governance constrains opportunities for cities to transition to sustainability.

Combining literature from urban theory, evolutionary economics, and sustainability studies, with empirical data collected through semi-structured expert interviews, this thesis investigates the sharing economy as a business model that may be able to deliver a transition to economic sustainability in cities in England. This is based on claims of its ability to optimise the use of resources by providing access to under-utilised assets. Three methods were employed to assess this business model: a systematic literature review; semi-structured interviews; and longitudinal case studies. The systematic review provided greater analytical nuance to the chaotic concept of the sharing economy, as well as a robust foundation for the empirical investigation. This investigation, comprised of the semi-structured interviews and case studies, utilised a systems innovation framework known as the multi-level perspective (MLP). The local authority institution was chosen for investigation due to its unique niche-level characteristics as well as existing attempts to implement sharing economy technologies.

The systematic review confirmed that access to under-utilised assets via an intermediary platform is the aspect that most distinguished the sharing economy from the many adjacent business models that surround it in the literature, policy reports, and in the tech press and media. This pointed to ‘access platforms’ as a more useful term to assist in the empirical investigation. Interviews with twenty-four Senior Directors in eighteen local authorities in England, conducted between Nov 2017 – Feb 2018, illuminated existing attempts to implement access platforms at the urban scale, identifying the enabling factors of activity as well as barriers to other opportunities. Two platforms, Comoodle in Kirklees and Share Peterborough, were chosen as case studies, based on their levels of funding and maturity, as well as their close fit with the definition of access platforms. Through longitudinal interviews with the platform programme managers the socio-technical factors of their development were compared to assess how such innovation is nurtured to deliver a transition to urban economic sustainability.

Instead of nurturing access platform innovation, what I term a platformisation of the local authority institution itself was uncovered. This shift from providing services to facilitating community members and organisations to provide services themselves, echoed the worst tendencies of asset-stripping ‘lean platforms’, and is pushing local authorities away from survival and towards a responsibilisation and

marginalisation narrative. Combined with the severe financial restrictions placed upon them by ongoing policies of austerity, and exacerbated by an equally restrictive local government innovation regime, this thesis contends that the current iteration of public-sector management is that of the 'enabling authority'. The processes that create enabling authorities place considerable pressures on opportunities to deliver a transition to urban economic sustainability. The creation of a multi-authority intermediary body was advocated as being better placed to harness the niche-level characteristics of local authorities, whilst also mitigating the risks of nurturing innovation in this environment.

1
INTRODUCTION

1 INTRODUCTION

Sustainability is a wicked problem (Frantzeskaki et al, 2014; Roome and Louche, 2016; Engert and Baumgartner, 2016) - it is complex and requires multidimensional solutions that span disciplinary and epistemological boundaries (Rittel and Webber, 1973). International attempts to coalesce an understanding of what sustainability is, and how to address this problem, stretch back nearly fifty years[1] (Meadows and Meadows, 1972; Goldsmith, 1972). Since these initial attempts, political attention has largely been focussed towards the pursuit of 'sustainable development', that is, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987: 41). This attention was codified at the 1992 Rio Conference on Environment & Development (UNCED), known as the Rio Earth Summit, through the signing of the Rio Declaration by over 170 countries. Following this, the UN outlined, first, the eight Millennium Development Goals (UN, 2000), and more recently, the Sustainable Development Goals (UN, 2015). These extended goals laid out 169 targets under seventeen headings covering topics as diverse as poverty, hunger, and clean water; health, education, and equality; and economic growth, sustainable cities, and responsible consumption. This expansion of the goals, and more granular understanding of the multidimensional aspects of sustainable development, help to highlight the wickedness of this problem. And whilst a clear international political mandate has been developed, along with these agreed goals, the understanding of exactly how to achieve them is less clear.

With the world urbanising at an increasing rate, and the global population now identified as living primarily in urban areas (UN-DESA, 2018)[2], there has been established, "a common understanding that cities contribute to global and local environmental problems and are a potential arena in which to address sustainability" (Bulkeley, 2006: 1036). This 'contribution' comes from their role as sites of intensified economic activity, which create disproportionate levels of both resource use and environmental pollution (Stern, 2006), and risk the collapse of basic services and social conflict (Basiago, 1999). These factors seem to suggest a need to focus efforts at the urban scale, but action here has so far been largely piecemeal with more attention directed at national policy and scales (Hodson and Marvin, 2010), despite continued calls for both more involvement of local leaders and support for activity at the urban scale (Graute, 2016).

This thesis is situated in attempts to articulate how to achieve these goals at the city-level and contributes directly to the Leverhulme Trust funded project, 'Sustaining Urban Habitats: an interdisciplinary approach', part of the University of Nottingham's 'Laboratory of Urban Complexity & Sustainability' (LUCAS). The

[1] This refers to modern day attempts under the banner of sustainability. An understanding of the processes that contribute to more sustainable societies can be, and often is (Meadows & Meadows, 1972; Basiago, 1999; Elliot, 2005; Bayulken & Huisingh, 2015), traced back to Thomas Malthus, and his 1798 work, 'An Essay on the Principle of Population'.

[2] The latest 'World Urbanization Prospects' report shows that 55% of people now live in urban areas. This is projected to rise to 68% by 2050, and compares with a rate of 30% in 1950.

ambitious aim of this broader project is to "transform our understanding of how sustainable cities, and by extension our species, can be" (LUCAS, undated), with objectives to:

- Confront and understand the complex interrelated and competing factors influencing urban sustainability.
- Holistically define, measure and model urban sustainability.
- Identify pathways to transition developed cities and accommodate growth in developing cities in minimally unsustainable ways.
- Define policy and governance structures to implement these pathways in practice.

To begin to address these aims, this project draws on research from numerous disciplines, spanning both the physical and social sciences. This interdisciplinary approach posed a number of unique challenges to the early conceptions of this thesis, and epistemological challenges had to be overcome before an appropriate direction, research design, and aims could be agreed across the range of disciplines involved in the wider interdisciplinary research project, of which this thesis is a part. These challenges included the unanticipated length of time it takes to communicate concepts across disciplines (Clark et. al., 2017) and the barriers that prevent shared understanding (Lyall and Fletcher, 2013). These issues contributed to a difficulty in outlining how interdisciplinary approaches would be developed and was the focus of research on the project itself (Lewis, 2018). Following this period of epistemological negotiation, two broad aims were agreed: to develop a theoretical understanding of urban economic sustainability, and to identify the business models that can deliver a transition towards more sustainable cities. An introduction to the first aim is provided below and was addressed via a review of the literature, an interpretation of which is presented in the discussion section. However, the focus of this thesis is on this second aim, an outline of which is provided in section 1.2. The four papers presented in the results section (Chapters 4-7), along with the majority of the methodology and discussion chapters, also speak to addressing this aim.

1.1 Aim 1: Develop a Theoretical Understanding of Urban Economic Sustainability

The focus on an 'economic' form of urban sustainability arose due to the structure of the broader project. As with many attempts to address sustainability, this project approaches it from three dimensions – the economic, social, and environmental. These 'pillars' of sustainability are widely used (Basiago, 1999; Khan, 1995), but their exact boundaries are ill-defined and the theoretical underpinnings of this approach have begun to be questioned (Purvis et al, 2019). With this thesis forming part of the economic dimension, the first aim is to develop a theoretical understanding of urban economic sustainability. To achieve this aim, the concept needs to be broken down into its three constituent literatures, urban, economic, and sustainability. Each one of these literatures offers multitudinous contentious conceptions, making the potential intersections of an urban economic sustainability

near limitless. To distil this into a reasonably bounded task, and therefore thesis, the following literature review will focus on the chosen individual conceptions, with reference to some of the key debates that surround each one.

By way of introduction, this will start with an elaboration of planetary urbanisation (Brenner and Schmid, 2015; Brenner, 2016; Schmid, 2016), and its foundations in the work of Henri Lefebvre. This form of urban theory lends itself well to explorations of sustainability, offering “a useful epistemological reorientation” (Brenner and Schmid, 2015: 175) that goes beyond the urban/rural binary used in the preceding assertions of a rapidly urbanising world. This reorientation is grounded in the contention that the urban space cannot easily be distinguished from the broader hinterland from which it takes its resources and deposits its wastes, and that the needs of the urban space have transformative effects on many different spaces in many different ways. However, it does not allude to the idea of a continuous planet-sized city, instead it refers to a, ”historically and geographically variegated process…mediated through historically and geographically specific institutions, representations, strategies and struggles” (ibid). This variegated process creates “moments” of “concentrated”, “extended”, and “differential urbanization” (2015: 171), which impacts the spatial practices, territorial regulation, and everyday life within them. In putting forward this epistemological reorientation of the urban, Brenner and Schmid (2015: 177) emphasise the “transformative potential” that is created by the diversity of “populations, institutions, activities, interactions and experiments in specific sociospatial configurations”.

The importance of a diverse conception of the urban is further highlighted by Robinson (2006) in her work on ‘ordinary cities’, which she contends are, “diverse, differentiated and contested, shaped by processes stretching far beyond their physical extent, but also by the complex dynamics of the city itself" (2006: 10). Robinson’s contention is designed to counter the prevailing attempts to categorise ‘global’ or ‘world cities’ (Sassen, 1991; 1994; Beaverstock et al, 1999; 2000). These attempts were predicated on a narrow view of cities, which only “operate to limit imaginations of possible urban futures” (Robinson, 2006: 94), and were largely quantified by an agglomeration of advanced producer services. Robinson was concerned to show how this approach appeared to reinforce a dichotomy of wealthy and poor cities, and instead suggested that greater significance is paid to "the broader urban context, including questions of poverty, inequality and cohesion" which are "deeply entwined with the economic futures of cities" (Robinson, 2006: 11). This opens up an opportunity to consider the role of a city’s ‘diverse economy’ (Gibson-Graham, 2006). Gibson-Graham’s (2006) diverse economy is a similar attempt to highlight the important role of non-monetary interactions, and is most synonymous with the diverse economies iceberg – see figure 1.1. The common conception of the economy places high importance on the monetary exchanges involved in the labour and market practices of capitalism. The role of the iceberg is to illustrate that these interactions represent just the tip of the iceberg of economic exchanges, many of which are non-financial in nature, but which are vital to the cohesion and equality of cities and society. This ‘weak

theory'[3] of diverse economies was designed "to make visible the resources available for building community economies" (Gibson-Graham, 2008: 628). Following this conception of the urban and beginning to overlap into the economic, the role of agents and institutions in such a diverse economy need to be considered.

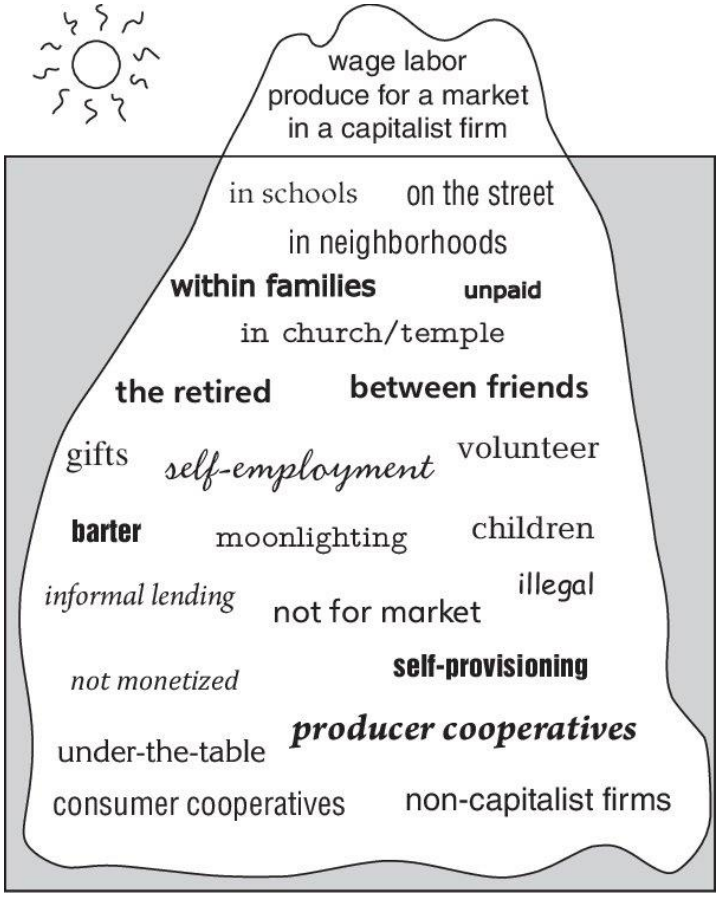


Figure 1.1: The diverse economies iceberg (taken from Gibson-Graham, 2006: 70)

Conceptualising the economy by the activity of the institutions in society is linked to the evolutionary economic approaches of Thomas Veblen (1898; 1914), and efforts to articulate economics as an evolutionary unfolding of institutions span the twentieth century and beyond. Of particular interest to this conception of urban economic sustainability is how both agents and institutions in cities engage in processes of 'creative destruction' (Schumpeter, 1934), contributing to a "perpetual process of economic flux" (Boschma and Martin, 2007: 537) through their co-evolution (van den Bergh and Stagl, 2003). It is in this adaptive process of destruction of existing systems that opportunities for transformative shifts arise, with new innovation interacting at multiple levels before being able to achieve a long-term and stable change in the cultural landscape. This multi-level perspective of system innovation (Geels, 2002) forms a significant part of the methodological

[3] Weak theory emanates from the work of Silvan Tomkins on 'affect theory' and is conceived as an analogue alternative to a digital strong theory. The latter always has the ability to refuse or reject elements of a theory, whereas the former can include many more elements that may be of use and may be more beneficial in "preventing the experience of negative affect" (Sedgwick & Frank, 1995).

framework for investigating attempts to transition cities to more sustainable trajectories, with particular attention paid to the institution of local government.

The final aspect of this theoretical understanding of urban economic sustainability comes via the measures of sustainability. Some assert that 'sustainable development' is a "contested concept" (Soderbaum, 2008: 1), kept "sufficiently vague" (Daly, 1996: 2) for political expediency in the negotiations for international action, highlighted above. It is therefore necessary to distil the aspects of sustainable development against which the actions of urban agents and institutions can be measured. As outlined above, the SDGs include specific goals around 'economic growth' and 'consumption', but the continued pursuit of growth is an economic "conjuring trick" (Daly, 1996: 64) reliant on the idea that natural capital is substitutable for man-made capital. For cities to be truly sustainable, they must understand that natural capital cannot be expended all the way down to zero, as it is a complementary form of capital, upon which all the other forms rely. This quest for qualitative development over quantitative growth requires a 'steady state economics' (Daly, 1996) and is a form of 'strong sustainability' (Cabeza Gutés, 1996). To achieve this, an 'absolute decoupling' (Jackson, 2009) is required, which involves the redesign of production processes so that economic output is not reliant on material throughput.

1.2 Aim 2: Investigate the Sharing Economy as a Business Model That Can Deliver a Transition Towards More Sustainable Cities

This theoretical understanding of urban economic sustainability forms the foundation with which to address the second aim of this thesis, to identify the business models that can deliver a transition towards more sustainable cities. During an initial literature review on economic sustainability, and in particular on business models for sustainability (Boons and Ludeke Freund, 2013; Cohen and Kietzmann, 2014), concepts related to the nascent sharing economy were identified as a potential model. The sharing economy aligned with the conception of a diverse economies approach, and involved the interaction of many agents and institutions at the urban-level – notably in the multi-sided markets of users, providers, and platforms. These markets may be for profit or not-for profit, and had implications that played out at the local level (Cooper and Timmer, 2015; Hirschon et al, 2014). This included particular impacts on employment and modes of consumption, necessitating policy responses (Wosskow, 2014) and research into legality and regulation (Morgan and Kuch, 2015). Most significant of the impacts claimed was a potential pathway to sustainability (Heinrichs, 2013). This was predicated on the provision of access to under-utilised resources (Botsman and Rogers, 2010), and provided a clear mandate to investigate this business model further as part of this research aim. To this end, a number of research questions were outlined:

- Is the sharing economy a potential pathway to sustainability?
    - What is the sharing economy?
    - How can this contribute to sustainability?

- Can such a pathway to sustainability be created or supported at the city-level?
    - Which institutions or agents are there at the city-level to implement such a pathway?
    - What sharing economy activities are these institutions or agents currently implementing?
    - How does this activity support a transition to urban economic sustainability?
    - Can other opportunities be developed to support a transition?
    - What barriers inhibit the development of activity at the city-level?

To begin this investigation, a clearer understanding of the processes driving the sharing economy was needed. This was because the initial literature review revealed that the sharing economy was an equally 'contested concept' with considerable "semantic confusion" (Belk, 2014b: 9), and overlapping boundaries with other digital and community-based economies. This included the on-demand economy (Cockayne, 2016), peer-to-peer economy (Bellotti et al, 2015), collaborative economy (Owyang, 2016), access economy (Rifkin, 2000), gig economy (Hathaway and Muro, 2016), the mesh (Gansky, 2010), post-ownership economy (Belk, 2014a), and platform economy (Choudary, 2015; Srnicek, 2015). Before being able to explore how this business model is being implemented at the urban level, and the potential for it to deliver a transition towards more sustainable cities, this contestation and confusion had to be removed from the investigation, and an understanding of the most relevant processes operationalised. In order to achieve this, a systematic review was undertaken, the results of which are outlined in chapter 5. These results point to a need to provide scalable access to under-utilised assets, and the use of intermediary platforms by which to achieve this. This was termed access platforms, and provided the foundation for an analysis of implementation at the urban scale. However, for methodological purposes, the existing proliferation of the term sharing economy across policy literature (Wosskow, 2014; DCLG, 2014) and the media (Morozov, 2013; Kapoor, 2014; Economist, 2015) necessitated the use of the more familiar term, sharing platform, during the primary research stage.

This necessity was driven by the nature of the local decision-making environment. The methodology describes the difficulties that arise in this environment and stem from the value-driven, and persuasive behavioural environment that masks evidence in the phenomenal environment (Kirk, 1963). The multi-dimensional wicked problem (Rittel and Webber, 1973) of sustainability adds further complexity to an environment littered with 'chaotic concepts' (Sayer, 1992) and 'cultural circuits of capital' (Thrift, 1997), making it difficult to create and maintain 'policy windows' (Kingdon, 1984) through which transitions may be empowered. With regard to the sharing economy, and other tech driven bubbles, this environment is exacerbated by 'availability entrepreneurs' (Netter, 2016) over-emphasising benefits or negative impacts. This value driven bias results in 'contradictory framings' (Martin, 2016) that can influence a decision-maker's choice to either

empower or resist the opportunities or threats that the sharing economy poses. These contradictory framings can be aligned with the self-interest of the availability entrepreneur with the positive benefits usually emphasised by tech start-ups seeking to gain market share, and the negative impacts decried by incumbent industries seeking to protect their market positions e.g. Uber vs taxi industry respectively. The combination of this behavioural environment, attempting to interpret the chaotic concept of the sharing economy, and the complexity of the wicked problem of sustainability, leads to greater potential for persuasion to be employed over evidence to address ambiguity (Cairney, 2013), and adds challenges to achieving this thesis aim.

The paper presented in Chapter 4 provides a further exploration of the method of systematic review employed to overcome this challenge. This paper focusses more heavily on the decision-making environment, and highlights the novel approach and under-utilisation of this method in the social sciences. This paper also makes the case for use of this method as a policy analysis tool, particularly in the public-sector and local government, and extends the issues of knowledge production discussed above.

Within this urban environment an agent or institution had to be chosen for investigation. Following the literature review and the focus on urban institutions in a multi-level perspective (Geels, 2002), the role of local government was identified as the unit of analysis – and in England, the executive function of local government is provided by the local authority. This was due to both a number of unique 'niche' level features of this institution (Fudge et al, 2016) and existing examples of sharing platforms being developed in local authorities in England - notably Comoodle by Kirklees Metropolitan Borough Council, and Share Peterborough by Peterborough City Council. The local authority also posed an attractive choice of institution for investigation due to ongoing financial restrictions placed on them by central government policies of austerity (Lowndes and Pratchett, 2012). This more than fifty percent cut in the central department budget for local government (IFS, 2015) and 37% cut in real terms to the front-line of English local authorities (NAO, 2014) is being felt unevenly across local authorities (Gray and Barford, 2018) and is sparking a range of response narratives from survival, responsiblisation, and marginalisation (Hastings et al, 2015). This has implications for the development of new ways of working and the nurturing of innovation to achieve local priorities, as well as for attempts to deliver a transition to sustainability. Additionally, empirical investigations into the nurturing of innovation in the public-sector are quite limited, particularly at the local level, and are dwarfed by research on innovation in the private-sector, offering this research the potential for a novel contribution. The methodology chapter describes the process and challenges of conducting semi-structured interviews, which provided the data collection method to answer the research questions under this aim. Twenty-six interviews were completed overall. The first twenty-four - conducted between November 2017 and February 2018 and primarily with Senior Directors in eighteen English urban local authorities - identified the sharing platform activities currently taking place in these cities and the factors that enabled this activity to happen. It also explored what opportunities

for further sharing platform activity existed, and the barriers that are preventing these opportunities from being realised. Two follow-up interviews were conducted approximately 18 months after the first series of interviews (May – June 2019). These revisited the efforts of Kirklees Metropolitan Borough Council and Peterborough City Council to deliver their ambitious sharing platform projects Comoodle and Share Peterborough.

Chapter 6 outlines the results of the first round of interviews, which identified much activity deemed to be sharing platforms. Analysis of this activity found that much of it could be better interpreted as asset rationalising, and pointed towards the marginlisation narrative described by Hastings et al (2015). This narrative sees the retrenchment of local authorities from public service delivery, and a move towards enabling and facilitating activity between local community members and organisations. There are also clear elements of the responsibilisation narrative as well, in which responsibility for service delivery or management of assets is transferred to the local community and community organisations. This platformisation of the local authority institution itself, as opposed to the implementation of access platform technologies, poses concerns for the long-term viability of local authorities facing increasing levels of marginalisation, and opting to employ the asset-stripping approaches associated with 'lean platforms' (Srnicek, 2015).

Chapter 7 presents the longitudinal case study comparison between Comoodle and Share Peterborough. The multi-level perspective innovation framework (Geels, 2002) was used to highlight the socio-technical configurations of their innovation niche and regime levels. Through this framework, the two platforms can be traced through near identical processes of development, facing the same challenges and attempting to address them in similar ways – despite differing priorities. Both platforms secured substantial, and highly competitive, external funding. Both developed strikingly similar access platform technology that struggled to match the expectations created by private-sector platforms. Both employed similar marketing and promotional strategies with much emphasis placed on face-to-face activity. Both attempted to sustain their platforms beyond their funding period using a franchising model, and tried to sell the social and environmental benefits to other local authorities. This was despite the fact that both platforms had failed to secure any investment from their own host authorities to support their development. In the end, both platforms lost their key programme managers who were passionately driving the activity. The responsibility then fell on broader teams who could not provide dedicated support, and as a result both platforms looked to transfer ownership and responsibility for the platform to outside the authorities. The analysis of how innovation is developed in such local authority niches and the pressures that are placed upon them by their local authority regime, suggested that developing new ways of working and innovative technology within a local authority is extremely difficult. However, through the use of an intermediary body (Hodson and Marvin, 2010) it may be possible to mitigate risk, avoid duplication, and exploit economies of scale, that would still allow the unique local authority niche

characteristics (Fudge et al, 2016) to be harnessed, and could enable more collectivist public platforms (Srnicek, 2015) to be realised.

Bringing these chapters together in the discussion, three primary pressures were identified as restricting opportunities to deliver transitions to sustainability. This restrictive local government innovation regime combined with the process of platformisation of the local authority, and exacerbated by the ongoing public-sector austerity policies, is producing what are defined as 'enabling authorities'. The characteristics of an enabling authority correlate highly with the marginalisation and responsibilisation narratives already outlined (Hastings et al, 2015), which see local authorities retrenching from service delivery and placing greater emphasis on communities to be provider, as well as user, of services. These pressures do not provide a conducive environment for the local authority institution to explore new ways of working, nor to develop or implement new innovative technologies that could deliver a transition to sustainability. Instead these pressures place greater emphasis on bottom lines and statutory service delivery needs, which are being exacerbated by the devolution of powers from central government. This makes it very difficult for authorities to pursue the survival narrative and to realise that "we can't cut our way out of the crisis" (interview participant).

1.3 Thesis Structure

This thesis is structured in a format consistent with that necessary for a submission by published works. Following this introduction, **Chapter 2** presents a review of literature from across urban theory, evolutionary economics, and sustainability studies. This establishes an understanding of urban economic sustainability, the focus of the broader interdisciplinary project within which this thesis sits. This understanding is necessary to both address the first aim of this thesis – to develop a theoretical understanding of urban economic sustainability – but also to justify the business model chosen for investigation to address the second, and primary, aim of this thesis – to identify a business models that can deliver a transition towards more sustainable cities. An operational definition of urban economic sustainability is therefore provided in section 2.6.

The methods employed in the investigation of the second aim are outlined in **Chapter 3**. Prior to detailing the approaches, a methodological context is presented to justify those approaches. This highlights the challenges of accurately assessing, and responding to, the opportunities and threats inherent in emerging concepts such as the sharing economy – the business model chosen for investigation. These challenges are exacerbated when considering wicked problems such as sustainability, and when operating within the urban institution under investigation, the local authority. The first method outlined is the systematic literature review, employed to distil the contradictory claims and potential impacts of the sharing economy, and to allow a more analytically nuanced concept to be investigated. Semi-structured interviews were the method used for the empirical assessment, to gather data from the expert practitioners in the local authority. Challenges

associated with this method of data collection are discussed, and the full procedure described. Follow up interviews were also undertaken so that two longitudinal case studies could be compiled.

The following **Chapters 4 to 7** outline the results of this secondary and primary research. As this is a thesis by published works each chapter is presented in a format that can be submitted for publication in a journal – though to reduce repetition all references have been collated at the end of the thesis. **Chapter 4** describes the method of systematic literature review, suggesting that it is an under-utilised method within the social sciences, and presenting it as an effective policy analysis tool, particularly in the public-sector environment. **Chapter 5** presents the results of the systematic review and focusses on the use of intermediary platforms to provide access to under-utilised assets within the sharing economy, asserting these access platforms as the defining feature and more nuanced term for investigation. The empirical research then follows and **Chapter 6** outlines the investigation into the use of access platforms within 18 local authorities in England. Identifying existing activity and its enablers, as well as potential opportunities for development and their barriers, this chapter also uncovers a broader process of retrenchment of the local authority from the delivery of public services. Instead of merely employing access platform technologies, a number of factors are contributing to what is defined as, a platformisation of the public-sector as a whole. This sees the local authority shift to an enabling intermediary role, rather than as a provider. The two case studies presented in **Chapter 7** explore how access platform innovation is nurtured in the local authority niche. The parallel development of nearly identical technologies, and the similarity of the challenges faced, suggest that single local authorities are not structured to effectively nurture innovation. Instead a multi-agency intermediary body is proposed that could better exploit the unique characteristics that local authorities offer to niche innovation development, whilst also mitigating the risks that are inherent in such development.

The thesis concludes with a discussion in **Chapter 8** that outlines how the primary pressures of local authority platformisation; the local government innovation regime; and public-sector austerity, are producing an 'enabling authority' form of public management. These enabling authorities constrain opportunities to deliver a transition to urban economic sustainability by hindering attempts to incorporate innovative technologies that could contribute to social and environmental priorities. The role of urban agents and institutions is instrumental in delivering international agendas such as the Sustainable Development Goals (SDGs), but the nature of this role appears to be shifting, and raises questions over the continued effectiveness.

2
TOWARDS AN UNDERSTANDING OF URBAN ECONOMIC SUSTAINABILITY

2 TOWARDS AN UNDERSTANDING OF URBAN ECONOMIC SUSTAINABILITY

To be able to address the aims of the overarching urban sustainability project, as well as answer the questions posed within the economic theme, a breakdown of the distinct disciplinary components of urban – economic – sustainability is needed. In doing so this literature review will develop a coherent conceptual framework, defining an operational understanding of urban economic sustainability, justifying both the methodological approach of the multi-level perspective and the decision to assess local attempts at developing sharing economy innovations.

Beginning with the urban context this review will present Brenner and Schmid's (2015) 'new epistemology of the urban', and the move towards a 'planetary urbanisation' – an appreciation of an increasing, and nearly indistinguishable, hinterland from which the urban draws its resources and deposits its waste. This is shown as a necessary conceptualisation of the urban that can more appropriately account for its sustainability. Drawing on seminal urban theory by Henri Lefebvre, and taking an 'ordinary cities' (Robinson, 2006) view, the urban will be defined by the prefigurative and diverse practices of its agents and institutions, rather than as a homogenous agglomeration, measured by its advanced producer services.

These agents and institutions form the basis of the economic context, which follows the evolutionary principles of Thorstein Veblen (1898), through the Schumpeterian (1934) ideas of novelty and creative destruction, and on to a coevolutionary path (van den Bergh and Stagl, 2003) of either technological transition or lock-in. The role of agency and structure (Giddens, 1984; Archer, 1995) is considered, along with the impact of this on creating an evolutionary economic geography (Boschma and Martin, 2007).

The economic context underpins the chosen methodological framework, a system-innovation analytical tool called the multi-level perspective (Geels, 2002). Whilst the urban context makes the case for a focus on the institution of local government. Geels (2002) describes the interplay of agents and institutions at three levels, the niche, the regime, and the landscape. Innovation nurtured in the niche is protected from market forces and slowly integrated into the regime level. By adapting the socio-technical configuration and hybridising the niche innovation with existing regime infrastructures, a technological transition could occur that would shift the stable cultural landscape. Conceived within the sustainability context this could deliver a transition to greater urban economic sustainability.

Finally, this sustainability context is outlined, charting a history from 'the limits to growth' (Meadows et al, 1972) and 'blueprint for survival' (Goldsmith, 1972) of the 1970s, and through the international policies of sustainable development (Brundtland, 1987). This leads to a focus on the entropy-based (Georgescu-Roegen, 1971) concept of steady state economics (Daly, 1996). Espousing a 'strong sustainability' (Cabeza Gutes, 1996) that understands that all forms of capital are complimentary (not substitutable) and that natural capital is irreducible below an

agreed minimum level, a case is made for production processes that 'absolutely decouple' economic output from material throughput (Jackson, 2009).

This sustainability context, along with a 'diverse economies' (Gibson-Graham, 2008) view of potential non-capitalist forms of work, provides the basis for an assessment of the 'sharing economy'. This evolution of 'collaborative consumption' (Botsman and Rogers, 2010) utilises digital technologies and logics of sharing (John, 2013a; 2013b) to unlock a perceived 'idling capacity' of production resources (Botsman and Rogers, 2010). The sharing economy has been suggested as a 'potential new pathway to sustainability' (Heinrichs, 2013), with a primary aim of this thesis to assess this contention.

As outlined, this combination of disciplinary contexts will result in an operational understanding of urban economic sustainability, which will itself be situated within two policy contexts. The international adoption of sustainability goals such as the UN's Sustainable Development Goals (SDGs) has led to calls for greater involvement from urban leaders (Graute, 2016) as it is often the urban setting in which many of the implications of these policies play out. Similarly, and specifically looking at the UK, recent policies of austerity – financial restrictions imposed on the public-sector after the 2008 financial crisis – have had a devastating impact on the ability of local governments to make discretionary spending decisions, and even put pressure on their ability to deliver statutory services. Gray and Barford (2018) outline the geographically uneven impact of these policies in the UK, and consider their role in exacerbating inequality and territorial injustice. Another aim of this thesis, therefore, is to look at the impact that these policies may have on the nurturing of innovation in the local government niche, and the subsequent impact on attempts to transition to sustainability.

2.1 Working at the Urban Scale

The urban aspect of this research focusses firstly on the critical theories surrounding the conception of what is urban, presenting the key debates, before looking at more recent shifts towards a planetary urbanisation (Brenner and Schmid, 2015) – an acknowledgement that the hinterland from which a bounded urban space draws its resources from and deposits it waste into, is becoming ever larger, almost to the scale of the whole planet. This shift recognises key concepts from sustainability studies in relation to efforts to deliver 'strong sustainability' (Elliot, 2005; Cabeza Gutés, 1996), as well as moves towards 'steady state economics' (Daly, 1996) and 'absolute decoupling' (Jackson, 2009) in economics – these latter concepts will be outlined further in the respective sustainability and economic context reviews. Whilst this planetary urbanisation underscores the scale of the potential impact, the focus of this research is how to mobilise the local actors and institutions who can exert influence to reduce the negative impacts and exploit opportunities to deliver more sustainable cities. In this regard the geographical focus is on 'ordinary cities' (Robinson, 2006), and in particular, local government actors.

2.1.1 Historical and critical theories

In order to situate this work geographically, and within a concise history, this section will focus on the development of the critical urban theories from the early twentieth century onwards. Allen Scott and Michael Storper have provided two succinct accounts of the development of urban theory over the course of the twentieth century (Scott and Storper, 2015; Storper and Scott, 2016). The focus of these two accounts was to counter the trend of what they call a 'new particularism' - the assertion by recent urban scholars of an irreducible diversity within cities and the futility of conceptual abstraction of the urban. They attempt this by demonstrating that "there *are* systematic regularities in urban life that are susceptible to high levels of theoretical generalization" (Scott and Storper, 2015: 12, emphasis in original), and provide an impassioned defence of that which is distinctively urban, and for the continued generalisation of all cities.

Despite this writer's scepticism regarding their central premise, their accounts of urban theory are still of great interest, whilst also helping to draw out some of the debates that arise between different factions of urban theorists seeking to address "the nature of the urban question" (Brenner and Schmid, 2015: 154). Ultimately however, Scott and Storper's critical accounts of the Lefebvrian 'urban revolution', along with the subsequent post-colonial framework of 'ordinary cities' and concept of 'planetary urbanisation', provide the ideal starting point from which to defend the use of these conceptual frameworks.

Scott and Storper (2015) outline four main periods of urban theory in the twentieth century. The first is the period of ecologically minded, ethnographic sociology associated with The Chicago School of the 1920s, and sociologists such as Robert E Park and Louis Wirth. By the 1970s they suggest that these ideas were, "being swept away by a powerful stream of Marxist and *marxisant* approaches" (2015: 2, emphasis in original), provided by writers such as Manuel Castells, Henri Lefebvre, and David Harvey. This period was characterised by an insistence "on a concept of the city as a theater of class struggle, centered on land markets as machines for distributing wealth upward and on associated political claims from below about citizenship rights to urban space and resources" (ibid).

Following this period, the 1980s and 1990s, they suggest, were split into three main branches. The first was concerned with gender, ethnicity, race, and class, providing insights into neighbourhood development and the spatial sorting of socially differentiated classes, and linked in particular to the work of Doreen Massey. The second was concerned with globalisation and the corresponding shifts in internal city structures needed to adapt, with the focus turning to writers such as Sakia Sassen and John Friedmann. The third, revisited older concerns about urban politics and governance and was focussed on the increasing scale of governance from local up to supra-national or even global.

At the turn of the millennium, Scott and Storper (2015) chart the trend in postcolonial critique of urban theory and the saturation of 'global North' based

theories, noting the work of Jennifer Robinson and Ananya Roy. They link this to earlier work on postcolonial urbanism, and suggest that this earlier work benefitted by not requiring, "either the rejection of existing urban theory or the development of alternative forms of theorization" (2015: 3). Developing simultaneously to this, they note the focus on actor-network theory and assemblage theory resulting in the construction of rhizomatic networks of human and non-human urban relationships. Ultimately, the combination of theory and practice in this period can be summarised "by the notion of the 'ordinary city' of variety and specificity as described by Amin and Graham (1997), which puts strong emphasis on the particularities of individual urban places" (ibid).

Scott and Storper (2015) warn of the fragmentation of urban studies that each "new generation of urban scholars" ushers in. They reflect on the "watchwords" that appear as scholars attempt to characterise narrow aspects of the city, leading to formulations such as, "captive cities, manipulated cities, postmodern cities, insurgent cities, consumer cities, cities as entertainment machines, the carceral city, the neoliberal city, the fragmented city, the dual city, the digital city, the global city, and the creative city" (2015: 3). There is considerable merit in this assertion, and this litany of urban theories is weighty evidence of the 'new particularism' they seek to defend against. However, the opposite of particularism is generality, and in both of their accounts they focus their defence of a general urban theory on agglomeration and economic activity:

> "*It is only by means of an analysis that begins with the complex spatial dynamics of economic activity that we can arrive at an account of the agglomeration dynamics common to all cities"* (Scott and Storper, 2015: 6)

Despite the growing complexity of cities, and of urban theories, Storper and Scott (2016: 1114-1115) suggest that cities share "fundamental common genetic factors", which enable them to become "primary centres of scientific, cultural and social innovation", but also sites of " concentrated poverty, slums, ethnic conflict, ecological challenges, unequal access to housing, gentrification, homelessness, social isolation, violence and crime and many other problems". The scale of these outcomes relates to the "usually accepted meaning of the term 'urbanisation'", and is based upon factors of "agglomeration, density and nodality and, by extension, to distinctive political, social, economic and identity-forming processes at the urban scale" (Storper and Scott, 2016: 1132).

They define agglomeration in relation to the work of Duranton and Puga (2004), stating that, "agglomeration can be generally understood as a mechanism of sharing, matching and learning" (Scott and Storper, 2015: 6), which are subsequently defined in terms of production systems, job markets, and innovation information respectively. This combines with their assumption that equates GDP as a viable measure of growth and development (2015: 6), and an assertion that internal relationships alone do not enable cities to develop and grow (2015: 7). All of these normative positions are used to underline the self-reinforcing feedback and importance of agglomeration, and are considered to be valuable, or even

inevitable, approaches for cities to take. In the context of creating more sustainable cities, the notion that continuous growth is of value is very much brought in to question (Jackson, 2009; Daly, 1996). Similarly, much doubt is cast on the idea that GDP, certainly in its current form, can continue to be a good measure of success or development (Coyle, 2014; Stiglitz et al, 2009)[4]. Instead the value of the diverse internal relationships, which Scott and Storper dismiss in their accounts, are much more central[5].

Tracing 'the scope and limits of the urban', and attempting to interlace the "mass of urban *relata* into the wider context of society", Scott and Storper (2015: 9, emphasis in original) discuss the difference between issues that are found *in* cities, and that are *of* cities, raising up a number of arguments related to the prevalence of poverty in cities and the results of the sub-prime housing crisis, neither of which, they contend are products of the urban, but also neither of which have been accused of being products of the urban. This is where the protagonists split from the spatial awareness of geography and their focus on the economics that may create tensions. Whilst these are not problems *of* the city, they are still problems *in* the city, which need to be solved *by* the city - the firms, households, institutions, and residents alike. All agents, people *of* the city, have to address these issues whether or not they were issues *of* the city. Increasingly cities have shown to be the place where the dimensions of sustainability play out (Hodson and Marvin, 2010; Cohen and Munoz, 2015), whether it be economic, social, or environmental; positive or negative; or whether or not they were issues *of* the city. In seeking to understand urban economic sustainability, any definition would need to acknowledge that all "cities are viewed as sites of intense economic activities and…are responsible for significantly dis-proportionate amounts of greenhouse gas emissions" (Hodson and Marvin, 2010: 480) – amongst other issues of intensified consumption and emission.

Scott and Storper (2015) show great concern for the emerging trend of highlighting the "irreducible diversity" of cities and the approach of "so many analysts…to treat every city as a special case and to insist on the futility and dangers of conceptual abstraction" (2015: 11). However, and this lies at the crux of the contention, whilst many scholars do make this claim, it is not in relation to the simple identification of what is or isn't urban, but more often in relation to the attempts being made to solve the issues *of*, or *in*, cities. Calls for post-colonialist frameworks for understanding cities (Robinson, 2006; Roy, 2009) don't argue that agglomeration economies aren't cities, they argue that there is a lack of diversity in the ways that we approach the development of all cities, and in how we measure their success.

It can be argued that these diverse processes are leading to a myriad of new understandings and formulations of the city, from above and below (Sheppard et al, 2015) and go full circle back to the work of Lefebvre in trying to marry the physical and the social into a single 'urban society' (Lefebvre, 1970). Extending this

[4] The questioning of both growth and the use of GDP as a measure of success will be covered in more detail in section 2.4.3.

[5] The diverse economies literature will also be explored in more detail in section 2.4.4.

Lefebvrian contention that the urban is more than the concentration of its physical (and even social) parts, scholars have begun to explore the concept of a planetary urbanisation (Merrifield, 2013, Brenner and Schmid, 2015; Brenner, 2018; Schmid, 2018). The premise of this concept is that distinctions such as urban and rural are increasingly redundant, as it is no longer possible to sever the physical identity of a city from its, increasingly global, hinterland. Again, in the context of creating more sustainable cities, a concept such as planetary urbanisation underlines that the resources and processes required for the 'urban-land nexus' actually come from a much wider hinterland than has previously been considered. And that the problems *of* the city, such as environmental degradation and social injustice, stretch out far beyond those same city limits. However, Storper and Scott (2016: 1132) are still sceptical of this planetary urbanisation approach, noting a threat to the "vibrancy of urban studies", and to its inability to "frame viable policy advocacies in search of social justice" (Storper and Scott, 2016: 1115).

2.1.2 Towards a planetary urbanisation

Other writers have joined the call for a more diverse appreciation of cities, questioning a "methodological cityism" (Angelo and Wachsmuth, 2015:16), that places "an overwhelming analytical and empirical focus on the traditional city to the exclusion of other aspects of contemporary urbanization processes", when instead what is needed is to, "blast open theoretical geographies, to produce a new set of concepts in the crucible of a new repertoire of cities" (Roy, 2009: 820). Others take a more hesitant and heterodox view. Seeking an "engaged pluralism" (Brenner, 2018) and attempting to move urban theory debates towards a creative renaissance rather than intellectual crisis (Brenner and Schmid, 2015), Brenner and Schmid (2014) put the "urban age in question", and try to align some of the old and new conceptions. They outline "a series of epistemological guidelines that follow from the preceding critique of the urban age thesis" (Brenner and Schmid, 2014: 749) in the investigation of a planetary urbanisation, and suggest a more evolutionary understanding of the urban.

This approach stems from the fact that, "new forms of urbanization are unfolding around the world that challenge inherited conceptions of the urban as a fixed, bounded and universally generalizable settlement type", and in questioning this epistemology of the urban they ask, "through what categories, methods and cartographies should urban life be understood?" (Brenner and Schmid, 2015: 151). Brenner and Schmid lay out three macro-trends in their questioning of the accepted understanding of 'cityness' focussing on the uneven spatial development of cities; the differentiated, polymorphic, variegated and multiscalar processes of densification, industrialisation and globalisation that are occurring outside of cities; and the regulatory geographies of capitalist urbanization which have led to an uncoordinated landscape of territorial and networked governance.

This latter trend encompasses what they refer to as the "new metropolitan mainstream", which prioritises economic growth and gentrification over job creation and equity (Brenner and Schmid, 2015: 153). This leads to a "struggle not only to influence the production of places, but to reshape the broader institutional

and territorial frameworks through which urbanization processes are being managed at every spatial scale" (ibid). In reference to increasing processes of external densification, industrialisation and globalisation Brenner and Schmid (2015: 166) refer to the former 'rural' and 'wilderness' spaces, intimating the reductive limits of these terms in tandem with the limits of cityness. It seems that this correlation of the limits of all these terms, and the acknowledgement of an increasing urbanisation due to capitalism into these spaces, has prompted critics to interpret this form of planetary urbanisation in alignment with science fiction writer Isaac Asimov's continuous city-planet, Trantor (see box 2.1). However, these contentions by Brenner and Schmid are an attempt to underline the scale of operation that capitalist urbanisation processes take, and not to suggest that there is an actual physical and totalising expression of cityness at the planetary scale.

Their work certainly seems to have blasted open theoretical geographies in so much as it has created many misunderstandings and mis-representations regarding the concept of planetary urbanisation. In a recent 'special edition' of 'Environment & Planning D: Society & Space', Brenner (2018) and Schmid (2018) are forced to address head on a number of these mis-representations and to restate the central tenets of this theory, which again provides a useful avenue with which to defend this epistemological approach.

The main concern raised is against the suggestion that planetary urbanisation is a universalising or totalising approach to urban theory. Brenner's defence makes many references to the fact that they "have emphasized repeatedly that planetary urbanization is a constitutively uneven, variegated process, one that is necessarily articulated through contextually specific patterns and pathways" (Brenner, 2018: 576), and aligns it with the post-colonial work of Robinson (2006) and Roy (2009) in particular.

In their attempt to assist in the positive development of an "engaged pluralism" on urban theory, Brenner rebuts the claim that planetary urbanisation suggests that cities no longer exist, are no longer important, or that the planet has been 'flattened'. What it does focus on is of particular note, and of far more relevance to the context of this work in sustainability:

> "*We have, however, questioned the long-entrenched obsession among many urban scholars with demarcating a neat boundary between city and non-city spaces in a world of increasingly generalized urbanization and rapidly imploding/exploding urban transformations. We have also called into question the naturalized, monist, singular, diffusionist, and transhistorical conception of "the" city that has long underpinned the major traditions of urban theory. We thus critique the epistemological framework of city-centric and city-dominant urban theory"* (Brenner, 2018: 575).

Box 2.1: The fictional planet of Trantor

Many of the corrections made in relation to the pejorative caricature that has been painted of planetary urbanisation focus on the aforementioned work of Scott and Storper. Particularly in relation to the latter claim about a flattened, or continuous and undistinguishable urban, other writers on planetary urbanisation haven't helped. One of the leading proponents of the concept of planetary urbanisation, Andy Merrifield, provides a detailed analysis of Lefebvre's use of imagery from science fiction writer Isaac Asimov (Merrifield, 2013). This lays out Asimov's concept of 'Trantor', a planet-sized continuous city of 40 billion inhabitants, exploring the "vision of urbanization taken to the max, a veritable utopia-cum-dystopia" (Merrifield, 2013: 910). Ultimately, however, this was an illustrative exercise designed to help us to "grasp the totality of capitalist urbanization" (ibid), and to begin to identify that the "Urban fabric does not narrowly define the built environment of cities, but, says Lefebvre, indicates all manifestations of the dominance of the city over the countryside" (ibid). That is, the city is very much more than its geographical boundaries (both physical and social), as it draws in resources from, and deposits waste into, a considerably larger boundary, often indistinguishable from the entire planet – particularly when considering atmospheric pollution for instance. It is only from this nondominant epistemological viewpoint of the urban that the planetary push and pull forces of sustainability can properly be viewed, and the manifestations of these at the local level be analysed, in the city, as it were.

Ultimately, planetary urbanisation is still a nascent area of study, and much like other fields of research before it, such as 'sustainable development', it will have to go through the process of consensus building. It seems, at least at this stage, that the name itself is causing some consternation, much like the title of the 'degrowth' movement - referring to modes of reducing production intensity - which failed as a "missile word" (Drews and Antal, 2016) to blast open more radical ways of thinking. However, in the context of research into sustainability, a recognition of the planetary impacts of urbanisation is warranted, and a useful avenue for continued exploration should come from the foundations of this principle, namely that of Henri Lefebvre, and subsequently Jennifer Robinson.

2.1.3 The 'first' urban revolution

Lefebvre's oeuvre, as it is often referred to, relates to a number of seminal sociological texts including, 'The Right to the City' (1968); 'The Urban Revolution' (1970); 'Marxist Thought and the City' (1972); and 'The Production of Space' (1974). Merrifield (2006: 80-81) has written extensively on Lefebvre and suggests that:

> "*Lefebvre's key urban text [The Urban Revolution] has a prescient subtext: it identifies the structural collapse of industrialism and state managerialism wherein urban revolution symbolizes a "postindustrial" revolution, a society no longer organized by planners but speculated on by entrepreneurs, a society we know to be our own*".

Lefebvre is shown to be highly critical of what he calls "cyberanthropes", who hold, "the principles of economics and a minimum of action [as] his ethical principles"

(Merrifield, 2006: 90). He suggests that these principles led to their technocratic following of Le Corbusier in the destruction of 'the street', a space he revered much like his contemporary Jane Jacobs (1961), and which he believed contained, “all the elements of urban life, which are fixed and redundant elsewhere, are free to fill the streets and through the streets flow to the centers, where they meet and interact, torn from their fixed abode" (Lefebvre, 1970[2003]: 18-19).

Merrifield (2006: 89) underlines Lefebvre's anti-neoliberalism, casting the cyberanthropes "as an entity of economic expansion in which investment and growth are ends in themselves". He points to his work, closely mirrored by David Harvey (1973) that identifies "secondary circuits of capital" in the urban revolution, which are used to dampen the effects of depression by providing a secondary source of value, built largely on speculation - pointing primarily to the role of real estate speculation to fill in (and possibly replace) the primary circuits of industrial production in times of crises. Exploring the role of Lefebvre's work, most notably 'The Right to the City', in contemporary urban studies, Erdi-Lelandais (2014: 6) echoes the anti-neoliberal position of Lefebvre, noting that whilst, "the expansion of urban markets and “urban regeneration” practices has brought enormous investment to areas that have been neglected for decades", the negative consequences are overlooked as "local governments often fail to provide adequate support for existing communities, compounding their vulnerability to displacement" (ibid).

In his later work on 'The Production of Space', Lefebvre further articulates this anti-neoliberal sentiment, suggesting that:

> "*Today, space as a whole enters into production, as a product, through buying and selling and the part exchange of space. Not too long ago, a localized, identifiable space, the soil, still belonged to a sacred entity: the earth. It belonged to that cursed, and therefore sacred, character (not the means of production but the Home), a carryover from feudal times. Today, this ideology and corresponding practice is collapsing. Something new is happening*" (Lefebvre, 1970[2003]: 155)

That "something new" may well be what Merrifield (2006: 94) describes as a "planetary phenomenon", in which "urbanization has conquered the whole world, left nowhere unscathed, nowhere “pure” anymore", and which leaves past distinctions between the core and the periphery quite meaningless. This leads into the idea of a "planetary urbanisation", discussed above.

Considering urban agents in particular, and returning to the compilation by Erdi-Lelandais (2014), Lefebvre's contention of "the right to the city", enshrined in his titular 1967 book, outlines how to "modify, concretise and make more practical the rights of the citizen as an urban dweller [*citadin*] and user of multiple services" (Lefebvre, 1996[2010]: 34). And while some will point to his lack of empirical data, his proponents point to how his sociologically based theories provide a theoretical framework from which to articulate a ground up conception of, amongst other

things, a right to the city. His objective, therefore, "was not to propose a tailor-made, ready-for-all instruction sheet to create a new city. He proposed a way and left to the *citadins* the possibility of making their own right to the city" (Erdi-Lelandais, 2014: 9).

Through the compilation of research covering different interpretations of Lefebvre's 'right to the city', Erdi-Lelandais (2014) demonstrates activist struggles for this right alongside policy makers and political actors' attempts to extend or curtail this right. Whomever the focus, and whichever the agenda, the focus on the agents and their struggles within a city is clear. Case studies look at cities recovering from "brutal industrial crises"; the relevance of the centre/periphery dualism; the growth machine of cities of culture; the performativity of urban wild swimming; and the inevitability of a city's integration into the global economy. Through these case studies, Erdi-Lelandais attempts:

> *"To provide examples about the empirical use of Lefebvre's sociology from the perspective of different cities and researchers, in order to understand especially the city and its evolutions within the context of neoliberal globalisation…[it] is not to propose a theoretical overview of Lefebvre's theory, but rather, reintroduce his key concepts so as to understand the contemporary city"* (Erdi-Lelandais, 2014: 10)

The recent rekindling of Lefebvre's work in general, theoretically, policy-wise, and in interpreting much of the prefigurative action taking place in, and on the periphery of, the city, acknowledges the complexity of the urban. Further articulating this, and much of the work of Lefevbre, Robinson (2006: 6) makes the case for a "collective refusal of categories and hierarchising assumptions", in her outlining of an 'ordinary cities' framework.

2.1.4 Ordinary cities

Robinson builds considerably on the work of Amin and Graham (1997: 411) in attempting to demonstrate that "contemporary urban life is founded on the heterogeneity of economic, social, cultural and institutional assets" and that this has "implications for urban policy and the quest for social and territorial justice". Robinson attempts to conceptualise a "new post-colonial framework" and in doing so questions the foundations of many of the urban scholars of the 20th century, up to and including the work of Hall (1966) and Knox and Taylor (1995) on 'world cities', and Sassen (1991; 1994) on 'global cities'. She is critical of the narrow focus used to measure success, with the establishment of categories such as developed and developing, and hierarchies of success based almost exclusively on advanced producer services. Robinson (2006: 98) refers to these narrow hierarchies as the "new industrial districts of transnational management and control", and rails against their dismissal of the diverse economic and social landscapes of most cities. Despite great attention having been paid to clusters, networks and agglomeration economies in recent urban theory, and their association with creating innovation, Robinson (2006: 11) demonstrates that most cities share "the most general urban agglomeration economies", whilst of much more significance is "the broader urban

context, including questions of poverty, inequality and cohesion", which are "deeply entwined with the economic futures of cities". Critiquing Storper's (1997) 'reflexive city', Robinson notes that agglomeration, co-location, and proximity in general are insufficient for creativity and innovation to emerge. It is the social interactions of the city that provide the context, which, "make a case for the broad economic potential of all cities" (Robinson, 2006: 110). This potential comes from an acknowledgement of the diverse social and economic contexts of the 'ordinary city'. Robinson concludes by warning that:

> *"Whereas much policy advice has stressed the potential of stimulating strongly localised learning environments through supporting specialised clusters, this ignores the vast potential that general urban agglomeration economies and the presence of a diversity of economic activities in cities might have for stimulating sustainable, resilient and even expansive development"* (Robinson, 2006: 164)

In the context of this research, taking an 'ordinary city' view enables the diverse approaches that are being taken in the mainly post-industrial cities of England to be better incorporated into an analysis of urban economic sustainability. It also allows for an appreciation that geographic proximity may be less relevant than structural proximity when seeking policies for urban enhancement and innovation. This aligns with a 'diverse economies' understanding of cities, coalesced at around the same time by Gibson-Graham (2008: 614), and with the aim to lay out an "ontology of economic difference". This diverse array of prefigurative daily practices represents the performativity of everyday actions in cities, recognizing "their constitutive role in the worlds that exist" (ibid.), but which are often marginalised in favour of market-based interactions. These diverse economies will be explored in more detail in section 2.4.4, but prior to that an outline of the economic context is provided.

2.2 The Economic Context

There are numerous approaches that can be taken within economics in order to study urban economic sustainability, from the classical and neo-classical approaches of Adam Smith and David Ricardo; through the more heterodox schools of David Harvey or Manuel Castells' Marxism, and Friedrich Hayek or Milton Friedman's neoliberalism; to the more applied methods such as the behavioural economics of Herbert Simon or George Akerlof. However, evolutionary economics has been chosen due to the industrial nature of the research, and the focus that this approach places on the institutions involved.

2.2.1 Economics as an evolutionary science

Thorstein Veblen (1898: 393), widely considered to be the fore-father of evolutionary economics, lays out the foundations of evolutionary economics as "the theory of a process of cultural growth as determined by the economic interest, a theory of a cumulative sequence of economic institutions stated in terms of the process itself". This foundation captures some of the key elements of evolutionary

economics, outlined below, namely path-dependence, lock-in, and co-evolution, which are reliant on a 'bounded rationality' of agency, and which can best be analysed through the institutions in society.

According to Urbano and Alvarez (2014: 704), Veblen defines institutions as "settled habits of thought common to the generality of individuals, which include usage, customs, canons of conduct, principles of right and propriety (Veblen, 1914: 49)". In his review of institutionalist approaches to economic analysis, Hodgson (1998: 168) highlights this evolutionary concern with institutions, habits, and rules, rather than the development of a single, general model. He contends that, "the institutionalist approach moves from general ideas concerning human agency, institutions, and the evolutionary nature of economic processes to specific ideas and theories, related to specific economic institutions or types of economy" (ibid), and suggests a more natural affinity with biology than physics. Hodgson (2004; 2006; 2012) has written extensively on this topic in recent years and underlines the importance of the psychological impact that institutions have in forming these habits. He notes the influence of psychologist William James on Veblen and the development of his institutional approach, constructing human behaviour as an interplay of inherited instincts and acquired habits. This led Veblen to surmise that, "habit is thus the enormous fly-wheel of society, its most precious conservative agent" (Veblen, 1898: 390, quoted in Hodgson, 2012: 93).

By focussing on how institutions evolve in society, evolutionary economics can analyse a number of processes that occur – notably, a co-evolving path dependence that can either lock-in socio-technical artefacts or revolutionise them. David (1985: 332) defined "a path-dependent sequence of economic changes [as] one [in] which important influences upon the eventual outcome can be exerted by temporally remote events, including happenings dominated by chance elements rather than systematic forces". He provides the example of QWERTY keyboards, which, despite not being the "ideal" arrangement of letters, were "first-to-market" and established themselves as the "universal" standard through a process of path dependence that ultimately led to 'lock-in'. David (1985: 334) describes the features of lock-in in this situation as "technical interrelatedness, economies of scale, and quasi-irreversibility", and can be seen as a function of the various institutions and agents present in the whole system. Through this process, lock-in significantly increases inertia, helping to normalise, or monopolise, certain products, skills, or ways of doing things. In many cases, only institutional reorganisation or replacement can allow change, and hence a focus on how institutions interact with each other, and the other agents in a city – their co-evolution – becomes relevant.

Emanating from ecology and evolutionary biology, co-evolution is conceptualised as "evolution + ecology" (van den Bergh and Stagl, 2003: 291) to denote the intertwining role of internal adaptations and changes to one's ecosystem. Much like the proverbial chicken and egg, it is not possible to posit which comes first, nor can one easily be extracted from the other to pinpoint the exact moments and factors that led to any changes. In this sense, "coevolution is the evolution of two or more populations through the action of reciprocal selective pressures and adaptation

between them" (Winder at al. 2005: 355) but is more ingrained that "simple mechanistic interactions" (Marletto, 2012: 51). From an evolutionary economics perspective, coevolution refers to the interaction of economic-cultural agents and their institutional arrangements, and this focus on institutional approaches can contribute to the search for the holy grail of economic growth, innovation (Cecere et al, 2014: 1037). If path dependence and lock-in are "typical implications", then "selection and variety creation (innovation) are cornerstones" of evolutionary economic theories (van den Bergh and Stagl, 2003: 308), and the potential to create this selection and variety can be enhanced through co-evolution.

With this aim, van den Bergh and Stagl (2003) start to piece together the building blocks of a co-evolutionary framework, motivated by the need to appreciate both the diversity of institutions that lead to innovation, as well as the fact that institutional change is affected by economic, social and environmental forces and agents. Recognising the antecedents of co-evolution in ecology – and referencing the work of Ehrlich and Raven (1964) - they go on to develop this concept for institutions, suggesting that, within a purely cultural or economic context:

> "*Co-evolution stresses that the system considered – the society or economy – consists of multiple subsystems, such as regions, groups, institutions and organisations that are part of a joint, interactive evolutionary process. Only by taking into account diversity within relevant subsystems, and interactions between these, can one devise a truly endogenous theory of institutions that sheds light on institutional change*" (van den Bergh and Stagl, 2003: 290)

Distinguishing this from the 'co-adaptive' processes most readily associated with evolutionary theory, the work of Norgaard (1984; 1994) is highlighted. Richard Norgaard, considered to be the pre-eminent scholar of co-evolution (Marletto, 2012: 52), uses the example of the co-evolution of plants, and animals with human development, as pests, pesticides, and the regulation of pesticides are used to improve the conditions for their development. This is done in recognition that the continued existence of one, requires the mutual existence of the other. They also recognise the importance of both individual and group selection mechanisms, asserting that "a coevolutionary perspective is required in which interactions at multiple levels – behaviour, institutions, technology, etc. – is examined" (van den Bergh and Stagl, 2003: 294). van den Bergh and Stagl (2003: 309) identify a number of factors in the relationships between individual agents and institutions:

> "*The impact of institutions on individuals includes the following mechanisms:*
>
> - *Institutions influence, enable or constrain behaviour of individuals*
> - *Institutions select among the diversity of individual behaviours and preferences.*
> - *Alternative institutions compete in different stages: conception, design, implementation, and ex post evaluation.*
> - *Enforcing of norms occurs through rewarding or punishing of individuals that do (not) follow the norms.*

- *Meta-norms may be present, which means that (non-)enforcers of a norm are rewarded (punished).*

The impact in the opposite direction includes the following mechanisms:

- *Interactions among individuals influence institutions: altruism, co-operation.*
- *Individuals form groups, depending on the size of the population. Note that groups and institutions are tightly connected, as isolated individuals do not need to co-operate or avoid conflicts through institutional arrangements.*
- *Groups influence individuals and institutions.*
- *Altruism can benefit (selfish) or harm (genuine) the respective individual.*
- *Co-operation between individuals can be voluntary (spontaneous) or enforced (regulation, norms).*
- *Co-operation can be beneficial, disadvantageous or neutral to the participating individuals*"

Seeking to understand this near-symbiotic relationship takes the focus off purely selection-based methods of evolution, and in the context of institutions, puts a greater emphasis on innovation.

2.2.2 Schumpeterian innovation dynamics and entrepreneurial energy
Schumpeter's (1934; 1942; 1954) work on innovation and his theory of economic development is at the heart of many urban and economic geographies. Through his most noted works on 'The Theory of Economic Development' (1934) and 'History of Economic Analysis' (1954), Schumpeter aimed to understand the impact of capitalist competition on economic growth, through its effect on innovation, which he saw as central to growth, and, in turn, to long-run improvements in social welfare (Cohen, 2010: 132).

Innovation has been referred to as variety creation (van den Bergh and Stagl, 2003) and novelty (Jackson, 2009). However, Schumpeter (1934) broke it into five types: 1) new product or product species, 2) new method of production, 3) opening of a new market, 4) acquiring new sources of supply, or 5) new industry structures. Schumpeter considered there to be a positive connection between firm size and innovation (or at least R&D), due to the proportionally reduced risk, and ability to secure greater investment. Whilst this theory is still relevant today, there is much evidence to support the counter-argument that small firms can be more innovative (again, as measured by their R&D activity – Cohen and Klepper, 1998). A number of authors draw on Schumpeter's idea of creative destruction when discussing: the process of challenging and overturning conventional methods (O'Neill and Gibbs, 2014); flexibility advantages of small entrepreneurial firms over incumbents (Hockerts and Wustenhagen, 2010); and driving economic growth by producing 'novelty' through the process of innovation (Jackson, 2009). In developing his Multi-Level Perspective (MLP) – see section 2.3 – Geels (2002) focusses on "evolutionary reconfiguration processes" and specifically draws from the work of Schumpeter, describing a process of unfolding and the creation of new combinations within technological transitions.

Drucker (1984) links Schumpeter to an understanding that policy intervention should focus on harnessing "entrepreneurial energy" rather than interfering with "abstract economic forces". He suggests that stagnation in Great Britain and France in the late nineteenth century was not felt in the United States or Germany, because they had, "industries based on new technologies and market opportunities [which] grew fast enough to provide investment demand and employment".

In exploring regional variation in knowledge-based entrepreneurial activity, Qian, Acs and Stough (2013) question Schumpeterian approaches to entrepreneurship which focus on innovation, instead suggesting that start-up firms represent a more "Kirznerian notion of entrepreneurship (Kirzner, 1997) that highlights the correction of market errors" (2013: 576). However, Hockerts and Wustenhagen (2010: 482) combine these two approaches under a "Schumpeterian (1962 [1934]) notion of entrepreneurship as an innovative process of creating market disequilibria", specifically defining sustainable entrepreneurship as, "the discovery and exploitation of economic opportunities through the generation of market disequilibria that initiate the transformation of a sector towards an environmentally and socially more sustainable state" (ibid).

2.2.3 Bounded rationality, agency, and structure

Returning to the evolving relationships between agents and institutions, there needs to be a consideration of the similarly co-evolving relationship of individual agency and societal structure, and, in attempting to articulate a methodological framework, recognition of a 'bounded rationality' (Simon, 1955; 1956; 1957).

Bounded rationality relates to theories of perception and cognition and is centred on our ability to interpret complex situations, with imperfect information[6]. It represents the heuristic approach that our brains take out of necessity, and relates to our need to, "construct a simplified model of the real situation in order to deal with it" (Simon, 1957: 199). Countering the neoclassical economist's central principle of a "rational man", Simon argues that whilst, "he behaves rationally with respect to this model…such behavior is not even approximately optimal with respect to the real world" (ibid). This gives rise to the importance of human 'agency', since, "to predict his behavior we must understand the way in which this simplified model is constructed, and its construction will certainly be related to his psychological properties as a perceiving, thinking, and learning animal" (ibid).

The philosophical understanding and literature on agency is near limitless, spanning many disciplines and remaining, "an age-old, highly complex, and inadequately resolved philosophical and psychological problem" (Hodgson, 1998: 179). Therefore, for the purposes of this thesis, only the role of agency in an evolutionary economic sense is considered. In this regard, the critical aspect of agency is that it is socially-embedded, that is "individual and social properties are irreducible to each other" (Safarzynska, 2012: 10). This contrasted with not just the neoclassical

[6] Following Hayek (1937; 1945) and the assertion that it is not possible to have all the knowledge required to perfectly account for all transactions in a system.

concept of rational choices leading to the creation of habits, but also with early institutional economic approaches in which habits where considered to create more rational choices. For the “new” institutional economists the influence of habits and earlier choices was wrapped up, irreducibly, between the individual agents and the socially embedded institutions. In this sense, “both individuals and institutions are mutually constitutive of each other. Institutions mold, and are molded by, human action” (Hodgson, 1998: 181).

When analysing concepts of economic development related to innovation, knowledge creation, and entrepreneurship, this ‘mutually constitutive’ relationship becomes central. In seeking to articulate this relationship further the ‘structuration theory’ of Anthony Giddens (1984) is relevant, along with the ‘analytical dualism’ critique of his contemporary, Margaret Archer (1995). Structuration theory relates to "a structure of three coevolving sub-systems - that is, institutions, technologies and markets…replicated and changed through individual and collective action and learning, which in turn are enabled and constrained by the above structure" (Marletto, 2012: 54). Archer’s subsequent critiques focus on the level of distinction ascribed to the individual agent and the structure. Giddens (1976: 75) asserts that the structure is based on internalised rules, whereby a “knowledgeable agent” can voluntarily follow those rules, or apply them differently to create a new structure. Archer (1982: 464) suggests that this “inflates the degrees of freedom for action”, and that the interaction between agent and structure should instead be followed in temporal sequence with the actions of one agent shifting the structure for the next. In doing so the analyst is able to “maintain a distinction between the individual and social reality” (King, 2010: 254) and can overcome “the unresolved voluntarism–determinism dyad in Giddens work” (ibid). This conflation of structure and agency as an indistinguishable ‘duality’ in Giddens’ work, is re-conceptualised as a ‘dualism’ by Archer (1982). Structuration theory provided considerable inspiration for the multi-level perspective (Geels, 2002; 2010), a systems innovation framework for analysing technological transitions through time. This temporal aspect helps to address some of the duality criticisms, and a more detailed explanation of the framework is provided in section 2.3.

2.2.4 Evolutionary economic geography (EEG)

Bringing all of these elements of an evolutionary economics together spatially, and the same questions began to arise in the discipline of geography. Evolutionary Economic Geography (EEG) emerged as a reaction to the abstract neoclassical economics that place too great a focus on assumed states of equilibrium, and minimises the transformations that arise from within socially embedded agents and institutions – considered to be the ‘real economy’. EEG emphasises an appreciation of the role of knowledge and innovation as a dynamic process of self-transformation of this 'real economy'. It emanates from Schumpeter's principle of 'creative destruction' - the destruction of old models of wealth creation being replaced by the 'novel recombinations' of the new ones. This "perpetual process of economic flux" maintaining one of the constants of capitalism - change (Boschma and Martin, 2007: 537).

In making the case for an EEG, Boschma and Martin (2007: 537) point to foundational work by Nelson and Winter (1982); Hodgson (1993); Arthur et al. (1997); Foster (1997); and Metcalfe (1998), and suggest these focus on "how the real economy evolves through real time". This, "evolutionary turn", is positioned as no less significant than previous cultural, institutional, and relational turns in geography (Boschma and Martin, 2007: 538), and provides a more heterodox approach to an historic central goal of geography - explaining uneven development. This leads Boschma and Martin (2007: 540, emphasis in original) to assert that:

> "Evolutionary economic geography is quintessentially concerned with *the spatialities of economic novelty* (innovations, new firms, new industries), with how the *spatial structures of the economy emerge* from the micro-behaviours of economic agents (individuals, firms, institutions); with how, in the absence of central coordination or direction, the *economic landscape exhibits self-organization*; and with how the processes of *path creation* and *path dependence* interact to shape geographies of economic development and transformation".

In their “sympathetic critique” of EEG, MacKinnon et al (2009) echo some of these features of EEG, outlining three strands: the neo-Schumpterian “turbulent system driven by waves of innovation” (2009: 132); historic trajectories creating path dependence that impact the adoption of technology; along with “organizational routines that are built up over time, providing the basis for competition between firms” (2009: 133). However, they reassert the role of institutions and suggest that “some of the recent contributions to EEG have risked relegating the role of institutions in shaping processes of economic change” (2009: 135). They refer back to Veblen’s conception of institutions as “settled habits of thought” that have the ability to “not only constrain but simultaneously also partially mould and enable individual habits, preferences, values, and actions” (2009: 134). This, they argue, provides a “nondeterministic notion of path dependence” (2009: 144) and enables more consideration to be paid to the varied factors that lie outside of a modernise or lock-in binary. Similarly, they advocate for greater consideration to be given to the role of power and politics noting that, “places need to be viewed as historically constructed assemblages of actors whose interests will sometimes diverge and come into conflict” (2009: 139). This call for a political economy approach is meant to emphasise that, “the evolution of the economic landscape must be related to the dynamics of capital accumulation and uneven development in addition to incorporating the role of labor in production and beyond” (2009: 145).

This situating of evolutionary and institutional concepts within a geographical political economy – what MacKinnon et al (2009: 145) refer to as an “evolution in economic geography”, as opposed to a separately constructed evolutionary economic geography – points to an existing analytical framework, the multi-level perspective (MLP). Before moving on to the sustainability context, an outline of this framework will be provided.

2.3 Examining System Innovation Through a Multi-Level Perspective (MLP)

The Multi-Level Perspective (MLP) has been considered extensively in various forms (Geels, 2002; 2010; Geels and Schot 2007; Unruh, 2002; Berkhout, 2002; Berkhout et al, 2004; Bulkeley et al, 2010). For the purposes of this thesis, and in particular with regard to combining the economic and urban contexts, it is on Geels (2002) framework that we will focus[7].

This framework operates on three analytical levels, a “nested hierarchy” of the niche, the regime, and the landscape. The niche is the location where ‘radical innovation’ is nurtured and protected. The regime is a rigid socio-technical configuration that helps to stabilise and lock-in innovation over time. Surrounding this is the cultural landscape in which habits and norms are solidified. “These ‘levels’ refer to heterogeneous configurations of increasing stability" (Geels, 2010: 495), and the MLP is an attempt to explain how new technologies can develop and break through the layers of increasing stability, leading to a technological transition - as shown in figure 2.1. Geels (2010: 495) defines transitions as “regime shifts”, which, “come about through interacting processes within and between these levels”.

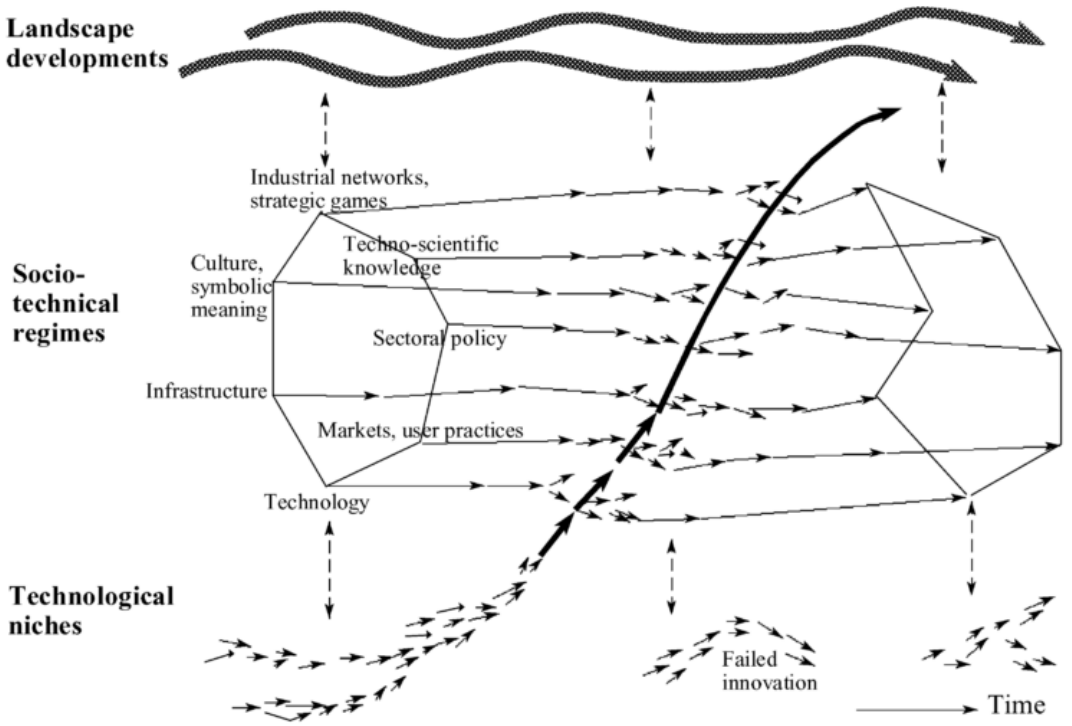


Figure 2.1: A dynamic multi-level perspective on technological transitions
Source: Geels (2002: 1263)

[7] The following description will focus on the technical aspect of the framework. For a useful illustration of the MLP see Geels (2002). In this paper he demonstrates the back and forth chain of developments of the shipping industry from 1780 - 1900. He outlines the relevant niches and how they interact with the corresponding socio-technical regime and landscape, demonstrating how they influence one another both upwardly and downwardly, culminating in numerous "innovation races" that create shifting technological trajectories.

2.3.1 The niche, regime, and landscape

The pathway to a technological transition begins through a process of "niche-cumulation" (Geels, 2002: 1271). This entails the gradual introduction of innovation, through say 'add-on' or 'hybridisation' - Geels (2002) uses the example of coevolution between steam and sailing ships – which result in larger scale introduction of niche technology once their value has been proven, and once regimes adapt to accommodate them. Whilst this upward interplay helps to introduce a new innovation to the regime, the niche also serves to protect early stage innovation from downward regime forces. Such downward forces might emanate from incumbent firms, or from the rigidity of other regime institutions, which do not wish to integrate the niche technology for fear that it could destabilise their existing market position. Niches are most readily associated with new start-up firms, who are seeking to provide protection from 'normal' market selection - when 'radical' technologies may be expensive and with low technical performance. Through their combination of resources, artefacts, and technology (van den Bergh and Stagl, 2003: 310), the niche effectively creates an incubation room in which to develop these radical technologies. They create favourable conditions as "locations for learning" (Geels, 2002: 1261) and testing, with ready access to supply chain and network development. All these add up to what Kemp et al (1998, 2001) and Hoogma (2000) refer to as "strategic niche management", or what Geels himself would refer to as the "seeds for change" (Geels, 2002: 1261). Subsequently, Geels (2010: 498) went on to describe this process as how "outsiders and entrepreneurs nurture and develop radical innovations in niches 'below the surface' of incumbent regime actors".

The stability of the subsequent regime level, into which 'strategic niche management' feeds, and is fed by, is a result of institutions and actors who contribute to sector specific knowledge, policy, regulation, infrastructure, networks, and markets, along with ascribing certain cultural meaning and ways of working. Geels confirms that the MLP combines previous work on the evolution of technological innovation, notably that of Nelson and Winter's (1982) 'technological regimes', with much earlier research by Schumpeter (1934) on 'new combinations'. In particular, it leverages their understanding of the stable structures and institutions who set rules that lead to inertia, paths and trajectories. Quoting from Rip and Kemp (1998: 340), Geels (2002: 1259-60) describes regimes:

> "*A technological regime is the rule-set or grammar embedded in a complex of engineering practices, production process technologies, product characteristics, skills and procedures, ways of handling relevant artefacts and persons, ways of defining problems; all of them embedded in institutions and infrastructures*"

The foundation of this embeddedness, given the nature of the 'ways' outlined, is inevitably held in the "practices and minds" (Geels, 2002: 1260) of agents, or what Urbano and Alvarez (2014) describe as the cultural-cognitive dimension. Combined with their normative dimension - related to social behaviour, values, and social

norms (Scott, 2008) - the technological regimes become 'socio-technical configurations', "because they not only entail new technologies, but also changes in markets, user practices, policy and cultural meanings" (Geels, 2010: 495). The influence of these meanings, as well as the stability that is provided, comes from the final layer, the landscape.

In short, the landscape is concerned with the "problems, rules and capabilities" inherent in markets and cultural values, with Geels (2002: 1260) outlining it as, "a set of heterogeneous factors, such as oil prices, economic growth, wars, emigration, broad political coalitions, cultural and normative values, environmental problems". The nature of the landscape means that it offers an even greater level of stability than the regime, but this does not mean that it is immovable, only that it will take more time for the changes in the regime to impact this layer.

2.3.2 Technological transitions (TT)

The aim of the MLP is to better understand the factors that contribute to technological transitions (TT). As already outlined, the MLP posits TT as 'regime shifts', and within the 'nested hierarchy' of niches, regimes, and landscapes, Geels (2002: 1262) shows that:

> "*TT occur as the outcome of linkages between developments at multiple levels…Radical innovations break out of the niche-level when ongoing processes at the levels of regime and landscape create a 'window of opportunity'. These windows may be created by tensions in the ST-regime or by shifts in the landscape which put pressure on the regime*"

Despite the name, and the close relationship to the work on technological regimes, Geels' MLP is an attempt to underline that, "TT do not only involve technological changes, but also changes in elements such as user practices, regulation, industrial networks, infrastructure, and symbolic meaning". Ultimately then, it is Geels' (2002: 1257) contention that "technology, of itself, has no power, does nothing. Only in association with human agency, social structures and organisations does technology fulfil functions".

Similar to the processes outlined above in relation to evolutionary economics and geography, the MLP leans heavily on co-evolution, path dependence and lock-in, all encompassed by the decisions and actions of individual agents within an institutional and societal structure. In her study of "the mechanisms of evolutionary change", Safarzynska (2012) suggests that in order to overcome lock-in or inertia, and to advance evolutionary economic theory, there is a need to consider "agency in evolutionary economics", and her study explores factors including the social embeddedness of individuals; bounded rationality; individual and social learning; evolving preferences; habits; and power. Given the foundational context of regime level institutions and the "mountain of experience" that builds upon these foundations, Safarzynska (2012: 13) contends that transitions [in her case, sustainability transitions] need to go "beyond knowledge acquisition to change how the individual perceives the problem, especially where the facts are uncertain and

values in dispute". It has been argued that this agent level interaction plays out most keenly in the urban context, and through “coalitions of interest” (Hodson and Marvin, 2010).

2.3.3 Urban-scale transitions

In critiquing the MLP, Hodson and Marvin (2010) cite a lack of focus on the urban level and governance within the MLP, suggesting that cities, as the space of increasing urbanisation, and disproportionate economic growth and environmental emissions, should command greater attention. They identify the relevant urban actors who form these ‘coalitions of interest’, and highlight their ability to shape, and be shaped by, national landscapes. Increasing, and complex, pressures, such as climate change, mean that city regimes and their national landscapes are combining, “to develop particular types of systemic responses that reconfigure the city and socio-technical systems” (Hodson and Marvin, 2010: 478). They assert, following Luke (2003), that “the significant uncertainties about precisely how climate change-induced effects will impact on particular places”, means that, “a premium is increasingly placed on how ‘cities’ develop the networks and relationships to develop new knowledge and intelligence” (ibid.). They also identify how cities attempt to internalise needs in order to reduce exposure to wider factors, questioning the ability of niches to be able to enact technological transitions. Following Smith et al (2005), they identify four 'ideal types' of transition context: endogenous renewal; re-orientation of trajectories; emergent transformations; and purposive transitions; they question the influence that existing governance arrangements have; and call for multiple stakeholders to develop a 'shared vision', setting out the requirements of an intermediary body that can secure funding and focus on delivery of that vision (Hodson and Marvin, 2010: 480-483).

Similarly, Marletto (2012: 57) contends that to overcome the stability of the regime and the "pervasive lock-ins", requires the, "cumulative empowerment of coalitions of enactors", in order to enable new socio-technical systems to emerge. Marletto (2012: 48), following Ostrom (1990), highlights the role of power, and in particular how, “powerful actors are interested in the reproduction of existing unsustainable systems”, which therefore requires that, "institutions must be designed which ease collective action and overcome every resistance to change towards sustainability". This paradoxical position poses the question of who comes first "actors for change or policy for change?” (Marletto, 2012: 58), and underlines the need for a broad network of actors to be engaged in the developing and delivering any shared vision.

Bulkeley (2006) extends this view for a shared vision and coalition of agents when investigating how best practice is created, shared and the lessons applied elsewhere (i.e. policy transfer). Wrestling between creation of general principles and a need for "local stickiness", the idea that best practice is part of a rational policy making process is challenged, and is instead part of a "contested process" in which actors seek to "reframe policy problems in light of competing political rationalities"(2006: 1035). Best practice, in this sense, becomes a "political rationality and government technology" to "promote particular urban futures" and

to "lend legitimacy to their interpretations of urban sustainability" (Bulkeley, 2006: 1029-30) i.e. it combines the agents at all levels of the MLP, but in particular the regime level, in order to deliver positive outcomes [transitions to sustainability] at the urban level. Following Bennett and Howlett (1992: 287), Bulkeley (2006: 1033) notes that problems arise when best practice is subject to pre-established goals, and that rather than being a genuine attempt to change or address a policy problem, it is instead used to legitimise policymaking. "Best practices become emblems of what it is possible to achieve, and are used to promote a political rationality of urban sustainability in contests over what urban futures should entail" (Bulkeley, 2006: 1039). Implementation fails due to an inability to appreciate the contested political rationalities, in places where "divergent conceptions of the public good" and "systemic questions about the nature of growth and development" already exist (Owens, 2004: 110, quoted in Bulkeley, 2006: 1041)

2.3.4 Transitions to sustainability

Another concern, particularly when considering sustainability transitions, is whether incremental changes are sufficient for transitions to occur. Whilst Geels (2002) work asserted that "TT occur not because there is a sudden shift from one regime to another, but through a stepwise process of reconfiguration" (Geels, 2002: 1272), subsequent research, particularly in relation to sustainability, has suggested that more radical shifts are necessary. Geels himself (2010: 495) acknowledged that incremental success in older problems such as water pollution, acid rain, and local air pollution, may not be enough in the face of "more substantive 'transitions' in the coming decades, i.e. major changes in energy, transport, and agri-food systems". Others in this field have also suggested that a more radical approach may be necessary (Elzen et al, 2004; Wiskerke and Van der Ploeg, 2004; van den Bergh and Bruinsma, 2008; Brand, 2012).

Furthermore, incumbent regimes and firms tend to favour more incremental changes, as they are perceived to pose less disruption to the stable regimes and existing trajectories. In the renewable energy market Bohnsack et al (2014) show how incumbents take advantage of small regulatory shifts that may provide a competitive advantage, to the detriment of smaller entrepreneurial firms; Frenken and Boschma (2007) highlight the incremental and path dependent "idiosyncratic routines" favoured by existing firms and cities; while Hockerts and Wusthagen (2010: 490) suggest that success depends on "a fine tuned mix of disruptive and incremental innovation" advocating for a better understanding of the "nuanced interplay" between what they refer to as "Emerging Davids" and "Greening Goliaths". O'Neill and Gibbs (2014: 573) are concerned by the lack of radical approaches in the green building sector and call on 'green entrepreneurs' to better embody "the long-standing concept of creative destruction" as outlined by Schumpeter (1934). They are particularly concerned that "the green economy is increasingly becoming a mainstream source of policy responses and initiatives in the developed world… particularly in response to the global financial crisis and to address issues of energy insecurity associated with dependence on diminishing sources of oil" (ibid).

O'Neill and Gibbs (2014: 579) go on to criticise the simplistic nature of the MLP, asserting that there is a much more "chaotic process", and question the "overly structural approach to change". Such a structured and narrow view - producing novelties on the basis of exchanging knowledge and capabilities between the niche and regime on a singular trajectory - could also result in a focus on only the problems of existing regimes. Applying this specifically to environmental technologies, Cecere et al (2014) show how organization-level routines and established regulatory systems can also slowdown the adoption of new innovation and technology, with regulations acting as double-edged swords - they can either support the transition to eco-friendly technologies or inhibit them - and require complementary policy instruments on employment, competitiveness or social awareness (2014: 1056). Cecere et al (ibid) highlight the unique opportunity of eco-innovations to stimulate greater diversity, resulting in individual development paths for different knowledge components; and a problem solving, context-specific, as opposed to a singular, trajectory.

In specifically addressing a number of criticisms of the MLP in relation to sustainability, Geels (2010: 496) concludes that the framework, and innovation studies in general, are well placed to address sustainability transitions, despite the need for "some conceptual broadening to address the normativity and directionality of these transitions". He is keen to point out that the MLP is characterized not as a grand or unifying theory, but as a middle range theory that makes crossovers to some ontologies and not to others. Considering the MLP, and where cities sit on a niche-regime-landscape framework, it does seem hard to understand the significance currently paid to national level regime dynamics, and the lack of focus on the role of the urban and urban agents. However, this does not preclude the MLP from being a useful framework with which to investigate possible sustainability transitions, as it can still be appropriately applied at this scale, and the role of city actors analysed – which is the intended use of the framework within this thesis.

2.4 The Sustainability Context

The goal of the project that this thesis sits within is firmly aimed at addressing questions of sustainability. Sustainability within the project is conceptualised as having three distinct dimensions - environmental, social, and economic - which is a now very common conceptualisation[8]. With this thesis forming part of the economic dimension, and combining with the earlier outline of the urban context, a more precise focus is on 'sustainable development'.

[8] Though Purvis et al (2019) suggest that the theoretical framework for these dimensions lacks a coherent underpinning, and assert that their heavily overlapping interactions makes them operationally indistinguishable.

2.4.1 Background in sustainable development

Sustainability is a "contested concept" (Soderbaum, 2008: 1), whilst 'sustainable development' was considered to have been kept "sufficiently vague" (Daly, 1996: 2) in order to help develop a political consensus at the time and provide a greater mandate for action. The widely acknowledged starting point for discussions relating to sustainable development (Basiago, 1999; Bulkeley, 2005; 2006; Hockerts and Wustenhagen, 2010; Dasgupta, 2009; Bocken, 2015; Stiglitz et al, 2009; Bayulken and Huisingh, 2015; Boons and Ludeke-Freund, 2013; Brand, 2012; Petts et al, 2008, Engert and Baumgartner, 2016) is the definition outlined by the UN's World Commission on Environment and Development (also known as the Brundtland Commission) in 1987, which is, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987: 41). This itself was borne out of emerging work by a great number of scientists and environmentalists who were beginning to identify that our way of life was compromising our very existence on our planet. Notably, there was the '*The Limits To Growth: A Report For The Club Of Rome´s Project on the Predicament Of Mankind*' (Meadows et al, 1972), and the '*Blueprint for Survival*', a special edition of The Ecologist (Goldsmith, 1972) signed by over thirty of the leading scientists of the day and preceding what is considered to be the world's first Environment Summit (the 1972 UN Conference on the Human Environment, in Stockholm).

The titles of these books deliberately underscore the severity of the task, and the dire implications of failure, and paved the way for the ideas of steady state economics (Daly, 1996), along with a degrowth movement (Kallis, 2011). The motivations in these ideas lay in the different methods being used, and considered, for accounting for capital, and led to accusations of a strong versus weak sustainability (Cabeza Gutes, 1996). Capital, in this sense, "includes all those assets from which people obtain well-being, either directly or indirectly. It thus comprises produced capital (machines, buildings, telecommunication networks), human capital [labour], natural capital [renewable and non-renewable resources] and social capital [institutions and networks]" (Hanley et al, 2014: 2).

2.4.2 Steady state economics and strong versus weak sustainability

The foremost author on the subject of steady state economics is Herman Daly (1977; 1987; 1996). His 1996 book, '*Beyond Growth: The Economics of Sustainable Development*', makes the case for steady state economics, highlighting it as a shift from quantitative growth to qualitative development, and as development without throughput growth. He notes the increasingly anti-economic nature of growth, as its marginal costs outweigh the marginal benefits, and how it fails to address poverty and inequality. Daly was concerned by the decoupling of Gross National Product (GNP) from natural capital, and a growth model that is based solely on human, social, and produced capital. This allows for, what he refers to as, "the Solow-Stiglitz conjuring trick" (Daly, 1996: 64), in which natural capital has been included in production formulas (such as Cobb-Douglas), and their position is such that they can be reduced to almost zero by a process of substitution with the other forms of capital. This underscores the root of the 'strong' versus 'weak'

sustainability approaches, or as Hanley et al (2014: 3) describe it, the, “assumption about how the different forms of capital combine to produce a stream of well-being over time and to maintain the functioning of the economy-environment system”. At the heart of the strong versus weak sustainability debate is whether these stocks are substitutable (weak) or complimentary (strong), and whether we need relative (weak) or absolute (strong) decoupling (Jackson, 2009).

Weak sustainability contends that the maintenance of a minimum amount of total capital is sufficient to be considered sustainable. This allows some of the forms of capital to be reduced to zero as long as the other forms are substituted in to counteract this decline (Cabeza Gutés, 1996; Pearce and Atkinson, 1993), with advances in technology presumed to enable this substitution (Elliott, 2005). Strong sustainability argues that the reduction of natural capital to zero is not sustainable, as the forms of capital are complimentary, with natural capital not substitutable by any means, and requiring a minimum to be maintained (Cabeza Gutés, 1996; Goodland and Daly, 1996). In order to deliver sustainability, decoupling is required, which means that "production processes are redesigned [and that] economic output becomes progressively less dependent on material throughput" (Jackson, 2009: 68). Absolute decoupling is needed for strong sustainability, which would see production fully decoupled from natural capital so that rather than maintaining a decline in stocks, there would be a maintenance above a minimum level. Unfortunately, Jackson (2009: 119) suggests that there is “still no consistent vision of an economy founded on continual consumption growth that delivers absolute decoupling. And the systemic drivers of growth push us relentlessly towards more unsustainable resource throughput”. Instead, approaches focus on more familiar ideas of efficiency and cost reduction and demonstrate a relative decoupling, which is, at best, a resource stabilisation (Jackson, 2009: 74)

In advocating for complementarity and an absolute decoupling of economic output from material throughput, Daly’s (1996) steady-state economics makes considerable reference to the pioneering work on entropy laws and the economic process by Georgescu-Roegen (1971). Georgescu-Roegen follows basic principles of thermodynamics to underscore the physical limits of growth on Earth. The flow in and out of energy from the sun is our entropic balance, where entropy relates to the “used-up-ness” of the capital stock. As such, simply attempting to substitute one form of capital for another, increases the entropy of the system, and those stocks cannot be reused. This contributes to Jackson’s (2009) ‘myth of decoupling’, and the illusion that we can separate economic output from material throughput, often through improved technology or efficiency of processes. Georgescu-Roegen’s ‘entropy law’ makes it clear that we cannot.

2.4.3 GDP, well-being, and measuring success

If complementarity is the paradigm (Hediger, 1999), and decoupling the method, then Gross Domestic Product (GDP) is, currently, the measure. This requires further scrutiny as questions on the value of GDP as an indicator of success are increasingly common (Elliot, 2005; Stiglitz et al, 2009; Coyle, 2015). GDP is a measure of the money used to pay for the flow of goods and services and therefore makes no

measure of "distinction" – i.e. the cost cleaning up an oil spill is treated the same as money spent on education – and no account for the depreciation of natural capital is made (Elliot, 2005). In seeking a more appropriate measure for strong sustainability, Jackson (2009) explores no/low growth models and asserts the need for two structural changes: dismantling of the perverse incentives for unsustainable (and unproductive) status competition; and to establish new structures that provide the capability to flourish in less materialistic ways. He identifies three areas of policy discussion and twelve specific recommendations, under the headings: establishing the limits; fixing the economic model; and changing the social logic, and notes that, "for the advanced economies of the western world, prosperity without growth is no longer a utopian dream. It is a financial and ecological necessity" (Jackson, 2009: 185). Jackson suggests that 'prosperity' is something that "transcends material concerns", and should be focussed on our "potential to participate fully in the life of society" (Jackson, 2009: 16), and he questions the institutions, models and logics at the heart of growth.

With this in mind, Joseph Stiglitz, who was earlier implicated by Daly (1996) in the near zero natural capital "conjuring trick", was commissioned in 2008, by then French President, Nicolas Sarkozy, to lead the Commission on the Measurement of Economic Performance and Social Progress, along with fellow Nobel memorial prize winner, Amartya Sen, and French Economist Jean-Paul Fitouzzi. Their goal was “to identify the limits of GDP as an indicator of economic performance and social progress” (Stiglitz et al, 2009: 7), and they outline twelve recommendations, broken down under three headings 1) Classical GDP issues, 2) Multi-dimensional well-being, and 3) A pragmatic approach to measuring sustainability. Their recommendations have been welcomed by economists who are seeking a broader dashboard of measures for success (Coyle, 2015). The report underlines the importance of subjective measures of well-being, and the critical need to account for environmental destruction (particularly in relation to climate change and emissions). However, they also appear to give a tacit acceptance of weak sustainability, and a renewed focus on consumption as a measure for well-being, both detrimental to longer-term sustainability transitions.

Further difficulties arise in relation to the earlier underpinning of innovation, and in particular the novel recombinations required for technological transitions. In a chapter entitled, ‘The ‘Iron Cage’ of Consumerism’, Jackson (2009: 97) is adamant that our currently unsustainable society is “not so much a consequence of consumer greed as a structural pre-requisite for survival". He furthers that, “institutions are given over to the pursuit of consumerism, and the economy is dependent on consumption for its very survival" (2009: 101). Jackson posits that the economic response from industry has been to satiate the restless desire for consumption through the restless innovation of novelty by entrepreneurs, thus underpinning economic growth (ibid). Aside from the unsustainable logic of this approach, Jackson also highlights how this often fails to deliver social progress and wellbeing and is a process driven by anxiety (ibid). We therefore need to "identify opportunities for change within society - changes in values, changes in lifestyles, changes in social structure - that will free us from the damaging social logic of

consumerism" (2009: 102). For a technological transition to occur that can deliver an urban sustainability that is strong and absolute, the focus cannot be on economic measures, there must include a shift in social consciousness away from destructive consumption logics and a corresponding reduction in environmental pressure on natural capital.

2.4.4 A diverse economies approach

To be able to shift away from dominant and destructive practices there needs to be an awareness of what alternatives exist. The diverse economies movement is one such approach at highlighting the non-market, unpaid, and non-capitalist activity that exists outside of the market, paid, capitalist space. Rather than seeking to define a new sub-discipline, theorising around diverse economies was aimed at "[opening] up opportunities for elaborating a radically heterogeneous economy and theorizing economic dynamics that foster and strengthen different economies" (Gibson-Graham, 2008: 618). In doing so, it was hoped that the "multiplicity and economic differentiation" (Gibson-Graham and Roelvink, 2010: 330) that exists can be made visible, along with the resources available to build community economies (Gibson-Graham, 2005). There was a desire to overcome the ingrained belief that there is only one way to run an economy (Stiglitz, 2002), and the seemingly "inevitable and unstoppable" orthodoxy of the 'Washington Consensus'[9] (Leyshon et al, 2003: 2-3). The "thick description and weak theory" of diverse economies was considered to be a way to achieve this, and to "produce a performative rethinking of economy centered on the well-being of people and the planet" (Gibson-Graham, 2014: S147).

The main protagonists in the diverse economies literature Katherine Gibson and Julie Graham (using their single writing persona, J.K Gibson-Graham), believed that this aim could be achieved by reconceptualising the existing capitalist hegemony as merely a dominant discourse and challenging these 'capitalocentric' discourses (Gibson-Graham, 1996). To do this required engaging the previously marginalised and suppressed concepts and discourses that had been positioned "as the opposites, the subordinates and servants, the replications, or the deficient, nonexistent or even unimaginable others of capitalism (Gibson-Graham, 1996: 35). This focussed on the discourses linked to the 'cultural turn' in geography, and for Gibson-Graham in particular this meant post-structuralist feminism and queer theory.

Gibson-Graham (2014) suggest the ethnographic practice of 'thick description' as a tool for making these non-capitalocentric discourses visible. Ethnographers have to navigate "chaotic landscape[s] of complexity" paying "interpretive attention not only to material practices but to the nuances, affects, multiple codes of meaning, silences, jokes, parodies, and so on, that accompany them" (2014: S148). These 'thick descriptions', whilst struggling to deliver an empirically robust focus for

[9] The Washington Consensus refers to the standard regulatory reform approach of international economic institutions including the International Monetary Fund (IMF) and the World Bank. This approach is considered to be predicated on opening up developing and/or crisis-hit countries to greater trade liberalisation and deregulation.

research, are “never absent, nor can [they] be bypassed” (ibid). Gibson-Graham aligns these to the marginalised discourses and suggests that more interpretive attention needs to be paid to these practices. Similarly, they note the difficulty in trying to resist ‘strong theory’, that is, the “powerful discourses that organize events into understandable and seemingly predictable trajectories” (ibid), but still advocate for a ‘weak theory’ approach:

> “*Weak theory does not elaborate and confirm what we already know; it observes, interprets, and yields to emerging knowledge. To rethink the economy using thick description and weak theory is to carefully reconsider the “large issues” that “small facts” are made to speak to*”
> (Gibson-Graham, 2014: S149)

Highlighting these discourses in this way can demonstrate the true heterogeneity of the economy, eroding the “black box of ‘the economic'” (Hobson and Lynch, 2016: 21) with spaces of difference outside the growth paradigm, “reinforc[ing] economic alternatives that develop political, ethical, and organizational potential, making them a normalised part of the economy and society" (ibid). The prefigurative and performative aspects of these practices (Richardson, 2015) further enhance the focus on non-monetary approaches, and open up space for sustainability discourse.

Hobson and Lynch (2016) chart a similar path from degrowth and decoupling discourses, and through the diverse economies approach, to consider the sharing and circular economies as potential economic alternatives. They are sceptical of the framings and outcomes that are being claimed by both the sharing and circular economy movements, questioning their 'radical' and 'disruptive' underpinnings and the hyperbole surrounding positive impacts and lack of focus on potential negative rebound effects. However, they suggest that there is still room for optimism, if a more radical approach and detailed analysis of individual cases in practice can be made. This approach would need to consider the:

> "*Other ways of thinking about and conceptualizing truly radical reconfigurations and ‘transformation discourses’ (Escobar, 2015), such as ones that emphasize the power and potential of everyday actions and “initiatives to change not just the day-to-day lives of a handful of committed activists but contribute to the broader societal transformations” (Cameron and Hicks, 2014: 54)*" (Hobson and Lynch, 2016: 20)

This thesis will address this challenge to provide a more detailed and sceptical analysis of the sharing economy. Starting with the possibly hyperbolic hypothesis that the sharing economy is “a potential new pathway to sustainability” (Heinrichs, 2013), the sharing economy will be conceptualised as a lens with which to explore urban economic sustainability.

2.5 The Sharing Economy as a Potential New Pathway to Sustainability

The sharing economy, arguably itself a co-evolution of the digital economy and communal forms of exchange, expanded significantly after a coalescing of research into collaborative consumption (Botsman and Rogers, 2010). Much press (Economist, 2013; Morozov, 2013; Kapoor, 2014), academic inquiry (Morgan and Kuch, 2015; Puschmann and Alt, 2016; Frenken, 2017), and policy analysis (DCLG, 2014; Hirshon et al, 2014; Wosskow, 2014; Cooper and Timmer, 2015) was dedicated to understanding (and often heralding) the potential of this phenomenon, with many actors ascribing numerous different positive and negative framings to it (Martin, 2016; Netter, 2016). Around the same time, a variety of overlapping digital economies emerged with many similar functions, but also many different motivations. This led to a flurry of terms including on-demand economy (Cockayne, 2016), peer-to-peer economy (Bellotti et al, 2015), collaborative economy (Owyang, 2016), access economy (Rifkin, 2000), gig economy (Hathaway and Muro, 2016), the mesh (Gansky, 2010), post-ownership economy (Belk, 2014a), platform economy (Choudary, 2015; Srnicek, 2015). To be able to make an accurate assessment of the potential opportunities and implications of a sharing economy to urban sustainability, it is first necessary to identify what set the sharing economy apart from this array of concepts, and to understand its driving factors. Prior to this, an outline of the widely cited research agenda offered by Heinrichs (2013) is provided.

2.5.1 A research agenda for the sharing economy

Heinrichs (2013), who, in recommending a number of avenues of study in this area, argued that the sharing economy has the possibility to create a third way between incremental regulatory change, and radical system overhaul, and could also "foster a more collaborative and sustainable society" (2013: 229), which could "meet expectations regarding effective resource use, strengthening social capital and fostering decentralized value production" (2013: 230). His call to action lacked any empirical foundation, which is still yet to conclusively materialise in the sharing economy literature, but it was not the empirical evidence that intrigued Heinrichs and subsequent researchers. By galvanising alternative forms of economic activity under the umbrella of the sharing economy, it could "[move] alternative ideas and approaches into the mainstream and [develop] a more comprehensive and stronger vision for sustainable development than we have used thus far" (2013: 231). It was hoped that this familiar diverse economies approach – like previous social and environmental movements of the past were intended to do – could positively shift the "radical flank" (Haines, 1984) of sustainable development, bringing the questions about personal consumption habits and the illogical quest for growth (Jackson, 2009) into the mainstream.

The most widely cited argument relating to the sustainability of the sharing economy stems from Botsman and Rogers (2010) work on 'collaborative consumption', and that the peer-to-peer platforms, which characterise this economy, can lead to more equitable and sustainable distribution of resources, by reducing both the cost of accessing products/services and the consumer demand

for resources (Martin, 2016: 149). Beyond the almost bucolic example of shared electric drills used by Botsman and Rogers, a common example used to support the sustainability argument of the sharing economy is the potential shift from car ownership to car access (Cohen and Kietzmann, 2014; Shaheen, 2016). This is most readily embodied in the plethora of car/ride sharing platforms such as Uber, Lyft, Didi Kuaidi (China) and Ola Cars (India), which are purported to unlock an 'idling capacity' in cars (see section 2.5.3).

Beyond the theoretical potential of these platforms, a number of early studies began to cast doubt on this claim (Martin et al, 2010; Shaheen et al, 2016), providing only limited evidence of any positive impact, and some even suggesting a potential for a negative rebound effect (Banister, 2008)[10]. In terms of this 'mobility question', the reduced cost of, what is effectively single occupancy, car travel, could encourage less sustainable consumer habits - even if the idling capacity of the vehicles themselves has been unlocked - by undermining shifts at the urban level towards low or no carbon travel choices, such as walking and cycling (DfT, 2004; DCLG, 2011). It would require considerable data analysis to explore this trade-off between more sustainable use of assets, and the potential promotion of less sustainable consumer habits, to identify what the rebound effect may be, but it is certainly an avenue that demands greater focus.

In order to situate the sharing economy amongst the array of seemingly coterminous terms identified above, and to begin to understand what is unique about it as well as what the potential implications of it are, a number of key drivers have been highlighted.

2.5.2 Drivers of the sharing economy: sharing

The sharing economy is, inevitably, largely considered in terms of its relationship to sharing, or as John (2013a) refers to it, the 'social logics of sharing', present in the social practices of the 'gift economy' (Mauss, 1954; Hyde, 1983; Godelier, 1999). Belk (2010; 2014b) applies this to more recent consumer behaviour, taking an anthropological view of sharing as, "a fundamental consumer behaviour" and citing Price's (1975) view that it is the "most universal form of human economic behaviour" (Belk, 2010: 715). Belk (2014b: 9) highlights the "semantic confusion" related to the "many shades of sharing" and which have "precipitated culture wars" – here he discusses the two views of file sharing as both theft and a form of gift economy, describing the new intellectual property legislation that resulted. Martin (2016) furthers Belk's idea of a semantic confusion, by identifying a range of frames that have been employed by opponents and proponents alike to positively or negatively shape the sharing economy discourse. Martin shows how over-lapping

[10] Negative rebound occurs when the cost, the efficiency, and/or the barriers to entry are improved to such a degree that demand goes up by a factor that continues to increase either consumption or the negative impacts - such as emissions or congestion. This is also known as 'backfire', or a 'Jevons Paradox'. This latter term comes from research by William Jevons in 1865 in relation to 'The Coal Question'. Jevons noted that the improved efficiency of the coal-fired steam engine, rather than reducing resource use and pollution, merely increased the demand and consumption of coal, which drove greater consumption and ultimately exacerbated environmental degradation.

terms and contradictory ideas of what sharing is, creates difficulty in accurately defining the sharing economy, and leads to near limitless interpretations of what is being shared e.g. shared ownership, shared access, shared risk, shared experience, shared information etc. In some respects, this confusion plays into the hands of incumbent firms and industries, who are concerned by the disruptive tendency of new sharing economy start-ups, and who allow confusion to spread in order to generate a perception that the sharing economy is not positive for society, whether empirical evidence exists or not. This kind of framing and confusion was also identified by Toffler (1980: 31) when looking at how the main actors of the 'second wave' (the industrial revolution), were trying to protect "what remains of the declining industrial order".

In addition to this perceived confusion, those within the sharing economy may be deliberately attempting to disguise the nature of their operations. John (2013b: 177) raises concerns about how Social Network Sites (SNSs), such as Facebook and Youtube, are attempting to rebrand the idea of sharing. He contends that they have embraced the term sharing to "mystify [their] commercial relations with advertisers" (2013a: 178) i.e. that they are selling personal data in order to monetize their operations, creating "frictionless sharing" with other sites to enable the delivery of targeted advertising. Indeed, John (2013b: 175) charts the evolution of the term 'sharing' during the internet age, and argues that its widespread use, particularly by those SNSs seeking to soften their monetizing practices, is due to its "positive connotations of equality, selflessness and giving" (John, 2013b: 176), and that it borrows from the "therapeutic discourse" on sharing to imbue feelings of intimacy, trust, and equality (John, 2013a: 125). This leads commentators to suggest that this new wave of supposed sharing and collaboration offers little in the way of alternatives to the business as usual practices of economic growth.

As such, sharing is itself an "increasingly vital consumer research topic" (Belk, 2010: 715) that could consume a considerable amount of space within this review. However, for the boundaries of this study, it is necessary to move past the "semantic confusion" and anthropological debates on the nature and logic of sharing, to focus on the framing of sharing as "a radical and disruptive act" (Martin, 2016: 151). This 'disruptive' framing is found across the academic (Barnes and Mattson, 2016) and policy (PwC, 2015) literature. However, Balaram (2016: 11) asserts that, "when we think of the 'sharing economy' it would be more useful to keep in mind 'shared value creation' than debate the semantics of the word 'sharing'", suggesting that it is by exploring this aspect that we can begin to understand why some sharing economy firms are able to capture billions in capital, and from here we can address some of the more important questions relating to how that will impact our society.

2.5.3 Drivers of the sharing economy: prosumption and collaborative consumption

In 1993, George Ritzer identified a 'McDonaldization' of production, in which tasks where broken down and routinized, and in some instances given to the consumer to undertake e.g. ordering at a counter, clearing up your rubbish when you have finished etc. (Ritzer, 1993). This was an example of a "collapse of production in to

consumption" (John, 2013b: 168), but was not the beginning of what would be described as 'prosumption'. Prosumption was first coined by Alvin Toffler (1980), when he asserted that there has never been such a thing as pure production or pure consumption, since those who produce, must also consume e.g. machines required for agriculture, or as simple as food needed for workers – and those who consume must also produce e.g. without production of something there is nothing to consume. Toffler therefore placed all activity on a continuum of prosumption and described how the marketization of the economy during the agricultural (first wave) and industrial (second wave) revolutions drove a wedge between production and consumption, which were previously delivered together through prosumptive cottage industries and small-scale agriculture. Toffler predicted that a 'third wave' of technological advancement would see the re-joining of production and consumption, and the sharing economy could be considered to be demonstrating a number of aspects of this wave.

Ritzer and Jurgensen (2010: 19) outline a number of modern forms of prosumption, particularly related to the internet, and the development of web 2.0, underlining that "Web 2.0 facilitates the implosion of production and consumption". Taking this a step further, the major forerunner to the recent sharing economy, and with internet-enabled prosumption at its core, is "collaborative consumption" (Botsman and Rogers, 2010). The theory of collaborative consumption is defined as:

> "*The reinvention of traditional market behaviors—renting, lending, swapping, sharing, bartering, gifting—through technology"* and *"includes three systems: product service systems, collaborative lifestyles, and redistribution markets that enable people to pay to access and share goods and services versus needing to own them outright. A key underpinning principle is 'idling capacity' - the power of technology to unlock the social, economic and environmental value of underutilized assets*" (Botsman, undated).

The collaborative aspect of this consumption echoes the collapse of production into consumption, with the logic of sharing as a major factor, and the internet as its driving force. However, it also brings in debates around the servitisation of the economy - prioritising access over ownership and re-positioning goods into services (Cusamano, 2014). Hill (1977) defined services as when, "one economic unit performs some activity for the benefit of another" (1977: 318), and this focus on an economic transaction adds to the concerns raised earlier regarding the misuse of the term sharing. Additionally, the tech start-up firms who dominate the sharing economy space have been accused of creating a 'problem solving bubble' (Kessler, 2016) in which the ownership and/or maintenance of certain goods is problematised and service delivery firms are provided in order to alleviate these hyperbolic problems. WeFuel is an example of a petrol delivery service – "Uber for gas" (Solomon, 2016) – that problemitises the need to go to a petrol station and instead provides someone who will drive the petrol to your car instead. The 'About Us' section of WeFuel's website even suggests that this service is more sustainable, "*WeFuel isn't just more convenient for you, it's more sustainable for the planet"* (WeFuel, undated).

2.5.4 Drivers of the sharing economy: digital technologies, networks, and disruption
In amalgamating the different terminology used across the sharing economy, the most consistent unifying force, particularly in relation to those activities with the greatest potential impact on cities, is that of the internet or web 2.0 - also referred to as the social web (Belk, 2014b: 7). Hyperboles abound as Botsman and Rogers (2010: xx) suggest that "people will look back and recognize that collaborative consumption started online"; Ritzer and Jurgenson (2010: 20) assert that web 2.0 "is currently both the most prevalent location of prosumption and its most important facilitator"; Belk (2014a: 1595) contends that "collaborative consumption and the 'sharing economy' are phenomena born of the internet age", coining the phrase 'internet-facilitated sharing'. Matzler et al (2015: 72) note how "growth in sharing systems has particularly been fuelled by the internet", and Heinrichs (2013: 229) makes reference to the use of "market intelligence to foster a more collaborative and sustainable society", which is enabled by the proliferation of the internet.

This combination of gift economies and digital technologies could lead to what is considered a "hi-tech gift economy" (Barbrook, 1998 [2005]), and from a firm perspective, Light and Miskelly (2015: 57) confirm that it is the "internet [that] allows [sharing economy firms] to scale quickly". However, they seemingly dismiss the significance of sharing in this process, instead focussing on the power of networks to connect people and to, "better exploit resources across distance" (2015: 56). It is this idea that cuts to the heart of the sharing economy ontology, focussing on the processes that enable it to flourish and establishing the boundaries of what we most commonly understand as the sharing economy. In this sense, we can consider sharing to be a misnomer in the sharing economy, a redundant adjoiner that may be substituted with a series of other terms such as digital, freelancer, on-demand, gig, platform, online, hi-tech etc. Much like degrowth was considered to be a "political slogan with theoretical implications" (Latouche, 2006: 16) designed to counter business as usual processes, the sharing economy too, can be considered in such a way. The sharing economy is a banner which can potentially be hung over all internet-facilitated, network-platforms, which connect producers and consumers, and 'disrupt' existing practices.

The idea of 'disruption' and disruptive innovation has grown rapidly as a goal of high-tech firms in recent years, particularly following the business models of Uber and AirBnB – who are often considered to typify the sharing economy. In their cases, enabling providers to connect to users at a large scale, and to overcome the regulatory barriers to entry in their respective transportation and hospitality industries, was what was considered to be disruptive. Christensen et al (2015) address this misuse of the concept of disruptive innovation. They underline the original work on the theory of disruptive innovation – "Disruptive innovations are made possible because they get started in two types of markets that incumbents overlook…low-end footholds [and]… new-market footholds" (Bowyer and Christensen, 1995: 48), They address Uber specifically, and point to the fact that they neither targeted low-end consumers with a "good enough" product, nor

created a market where none existed. Instead Uber demonstrates the characteristics of a 'sustaining innovation', or one which, "make[s] good products better in the eyes of an incumbent's existing customers" (Bowyer and Christensen, 1995: 49). They are therefore, "not seen as generating new forms of wealth, but rather as bleeding existing businesses dry though identifying bottlenecks in the market" (Balaram, 2016: 16). Understanding the form of innovation is considered important because it dictates what strategy managers need to take in order to adapt to, or compete with, the innovation:

> "*The problem with conflating a disruptive innovation with any breakthrough that changes an industry's competitive patterns is that different types of innovation require different strategic approaches. To put it another way, the lessons we've learned about succeeding as a disruptive innovator (or defending against a disruptive challenger) will not apply to every company in a shifting market. If we get sloppy with our labels or fail to integrate insights from subsequent research and experience into the original theory, then managers may end up using the wrong tools for their context, reducing their chances of success*" (Christensen et al, 2015: 45)

2.5.5 Drivers of the sharing economy: platforms and reputational capital

The platforms upon which the sharing economy firms, industries and activities are built are crucial to its success and development, leading to the idea of the 'online platform-economy' (Farrell and Greig, 2016). Much of the sharing economy can be distilled down to the delivery of existing products and services through more modern, and usually online, platforms - be that related to the searching and booking systems, payment and delivery systems, or the safety and reputational systems etc. While online payment systems remove the need for awkward face-to-face discussion over payment, and increase the safety of users and workers due to the reduction in the need to carry physical money, it is the development of the reputational systems that has been most pivotal in the fortunes of the sharing economy. Shor and Walker (2011: 14) note how the 'digital dimension' of the sharing economy "allows crowdsourcing of reputational information and ratings that mitigate the risks of intimate exchanges among people who don't know each other. While sharing has been around forever, this type of 'stranger sharing' is new". Belk (2014a: 1598) goes further to describe a "reputational economy" that uses online reviews and ratings to engender trust between strangers in the offline world, overcoming previous 'stranger danger' concerns that would have barred such a sharing economy from ever existing. Morgan and Kuch (2015: 571) reinforce this from a legal perspective, noting the sharing economy's "heavy reliance on mutual trust and quantitative reputational feedback systems".

Balaram (2016a: 44) furthers this discussion by looking at the creation and use of "reputational capital" and looks at the emergence of reputational data handling systems such as 'Karma'[11] and 'Traity'[12], which enable reputations to be transferred between firms. These "reputational passports" mean that you do not have to start

[11] https://www.havekarma.com/
[12] https://traity.com/

from scratch in building trust for each activity within the sharing economy, providing workers in the sharing economy greater freedom to move between platforms. Much like the use of digital payments drove growth in previous online industries, the establishment of, and flexibility to transfer, reputational data can be considered the currency of the sharing economy.

This brief overview of just a few of the drivers of the sharing economy, and the overlapping concepts that it contains, is by no means exhaustive. This initial literature review is unable to properly distil from the literature the unique features and processes that make the sharing economy distinct from other digital and collaborative economies. This makes an accurate assessment of its potential pathway to sustainability, and the identification of possible opportunities or threats, very difficult. For this reason, it was decided that a full systematic review of the sharing economy literature was needed (see chapter 5). This would provide greater analytical nuance, providing a more robust assessment for urban, and other, policymakers, as well as offering a stronger foundation for future empirical research into the sharing economy (see chapters 6 and 7).

2.6 What is Urban Economic Sustainability?

Bringing together the three disciplinary contexts, table 2.1 describes the primary elements of the conceptual framework used in this thesis, setting out the boundaries of an operational understanding of urban economic sustainability.

Table 2.1: A conceptual framework of urban economic sustainability

Context	Description	Theory
Urban	Acknowledging the impact of entrepreneurial speculation on shaping the urban, and the prefigurative activist struggles necessary to (re)assert rights to the city.	The urban revolution (Lefebvre, 1970)
	More than an agglomeration of advanced producer services, but a diverse landscape of activities and interactions, with equally diverse social, environmental, and economic implications.	Ordinary Cities (Robinson, 2006)
	A physically bounded space that cannot easily be separated from the increasing hinterland that it draws from and deposits in to.	Planetary urbanisation (Brenner and Schmid, 2016)
Economic	A cumulative sequence of institutions, themselves an amalgam of settled habits and behaviours.	Institutional and evolutionary economics (Veblen, 1898)
	Driven by a quest for novel recombinations of wealth creation, a process that continually makes way for	Novelty and creative destruction (Schumpeter, 1934)

	the new in a 'perpetual process of economic flux'.	
	Evolving over time, the interaction of institutions seek to reinforce or revolutionise socio-technical trajectories.	Coevolution of agents and institutions (van den Bergh and Stagl, 2003)
Sustainability	Requiring a shift from quantitative growth to qualitative development, with a reduction in throughput of capital stocks.	Steady state economics (Daly, 1996)
	An understanding that capital stocks are complimentary and not substitutable, and that natural capital cannot be reduced to zero by technological, or any other, means.	Strong sustainability (Cabeza Gutes, 1996)
	The redesign of production processes so that economic output becomes increasingly less dependent on material throughput.	Absolute decoupling (Jackson, 2009)

Following this framework, a working definition of urban economic sustainability can be reached:

Urban economic sustainability requires the successful decoupling of production and economic output from natural capital by agents and institutions in diverse and evolving urban spaces. It recognises the temporal, co-evolutionary processes of these agents and institutions and how they can either reinforce or revolutionise the structure of society and the economic, social, and environmental trajectories within it. The urban is the distinctly bounded space in which these processes are enacted, but the true boundaries are almost indistinguishable from the ever-increasing hinterland from which they derive their resources and deposit their emissions.

In order to address the aims of this thesis, a multi-level perspective (Geels, 2002) will be used so that an analysis of the evolutionary processes, and an assessment of their potential to deliver a transition to greater sustainability, can be made. Taking a 'diverse economies' approach (Gibson-Graham, 2008) makes visible the wider range of options (beyond narrow 'capitalocentric' viewpoints) that might bring about such a transition, opening up the sharing economy for assessment.

Considering the urban-scale, this thesis will focus on the local government, and attempts at this level to develop knowledge and innovation that seeks to bring about a shift towards sustainability. The local government is an often overlooked institution in economic geography and innovation studies, with the role of firms and entrepreneurs the more common focus. Currently, in the UK, and in particular in the English regions where this research is based – there is considerable pressure on local governments due to financial restrictions placed upon them by central government austerity policy. This policy context is a factor underlying the urgency of this research and is outlined below following a description of the equally urgent urban sustainability policy context.

2.6.1 Policy context: sustainability in cities

Beyond the theoretical debates, the increasing urbanisation of our planet requires considerable policy intervention. As our society passes the point of becoming more urban than rural, with projections of 68% of the population living in urban areas by 2050 (UN-DESA, 2018), the next trends in urban planning and development become ever more critical. This increasing 'urbanisation' leads to "a series of 'new' socio-economic and political problems", which are, "pushing issues of ecological security up the agenda of national governments" (Hodson and Marvin, 2010: 478). However, these issues are increasingly being played out in the urban context, necessitating action at a sub-national scale, and Hodson and Marvin (2010: 479) go on to note that cities are increasingly attempting to internalise needs, so that they can "withdraw from reliance on international, national and regional infrastructures". These attempts may come in many forms, from energy production, or water desalination, to urban mobility pricing, but fundamentally require city stakeholders to "translate their strategic concern about their ability to guarantee resources into strategies designed to reshape the city" (Hodson and Marvin, 2010: 478).

Cities also sit at a unique intersection between national and supra-national regulation, and grass-roots citizen and firm activity. This puts increasing pressure on city administrations and their increasingly limited resources, driving even greater need for sustainable approaches (Basiago, 1999; Bulkeley, 2006). In recent years, the importance of city leaders, notably Mayors, has gained global significance and co-operation. Since its inception in 1990, the partnership of municipal authorities incorporated through the 'International Council for Local Environmental Initiatives' (ICLEI) has played a leading role in the sustainable development work of the UN. Placing further emphasis on this scale in relation to sustainability, the UN's 'Agenda 21' underscores the importance of local knowledge, local empowerment and valuing of the local, or what Latour (1993) would call 'networks of knowledge'. Whitehead (2007: 100-101) extends this to emphasise the need to adapt existing methods, rather than supplanting, what he suggests, amounts to neo-imperial approaches.

More specifically, Heckmann (2007: 7) identifies how Agenda 21 requires national and local governments to "generate a framework for the development of urban areas which includes the strategic implementation of economic, social and environmental measures to achieve full economic potential, social justice, equality of opportunity and environmental protection". Within this he also notes the role of private-sector investment in their delivery, and the subsequent relationship to central government policy.

Similarly, organisations like the Rockefeller Foundation's '100 Resilient Cities'; Bloomberg Philanthropies 'Mayor's Challenge'; and the 'C40 Cities Network', have brought together Mayors from across the world to commit to pledges to improve their city's sustainability and resilience. This has led to the accusation from Graute (2016) as to why cities aren't being given greater powers in order to improve their own situations, and of the hinterlands that they feed from? In relation to the UN's

recently agreed Sustainable Development Goals (SDGs)[13], Graute (2016) asks why local authorities are still only viewed as observers, when the UN acknowledges their important role in delivering such goals? Likewise, Basiago (1999: 145) underlines this important role of cities, and the need for greater urban sustainability, labelling them as the "antidote" to the "social conflict, environmental degradation and the collapse of basic services" that will result from increased urbanisation.

2.6.2 Policy context: local government austerity

A city's ability to respond to the need for greater sustainability, and to exploit the opportunities and assets at its disposal, is greatly enhanced or curtailed by the resources that are made available to the local administration. In the UK, following the 2008 financial crisis, the central government announced "the deepest cuts to public spending in living memory" (Alan Johnson, then Shadow Chancellor, quoted in Mulholland and Watt, 2010). This period of austerity spending measures (Lowndes and Pratchett, 2012) was described as the "the worst financial settlement in living history", Hastings et al (2015: 606), and has had severe implications for local government in the UK, and elsewhere.

Despite suggestions that austerity is "a keyword for these ostensibly post-crisis times" (Peck, 2012: 626), the concept developed around the turn of the millennium in relation to an identified retrenchment and/or reform of the welfare state (Pierson, 1998; Korpi and Palme, 2003; Starke, 2006). It was suggested that an atmosphere of 'permanent austerity' was now present due to increased pressure on public services from forces such as the rising and aging population (Pierson, 1998). The recent upsurge in the use of the term austerity, as demonstrated by Peck's (2012: 627) keyword analysis of four major news outlets, follows the sharp downturn in many Western economies following the 2008 financial crisis. The current use of austerity is therefore not so much a reference to conditions brought about by long-term socio-economic forces, and is instead focussed on the shorter-term, fiscal policy responses instituted by many central governments after this crisis.

This shift to a more 'acute austerity' was driven by self-imposed targets to reduce the national budget deficit, and has further exacerbated the impact on public services beyond the established process of 'permanent austerity'. In the UK, local government was particularly badly effected as a more than 50% decrease in the central Department for Communities and Local Government (IFS, 2015) was translated into a 37% real terms budgets cut for the UK's local authorities (NAO, 2014) - the local administrations responsible for the delivery of many vital public services. Gray and Barford (2018) demonstrated how a combination of factors at the local level, such as funding, local tax-base, fiscal resources, assets, political control, service-need and demographics meant that the impact was unevenly felt. Typically, the post-industrial towns and cities outside of London and South East of

[13] The Sustainable Development Goals (SDGs) are seventeen overarching sustainability goals broken down into 169 corresponding targets. They were adopted by all United Nations member states in 2015 and are set out in 'Transforming our world: the 2030 Agenda for Sustainable Development', available at **https://sustainabledevelopment.un.org/post2015/transformingourworld**.

England were hardest hit, with austerity functioning “to ameliorate the worst aspects of the enduring North-South divide” (Gray and Barford, 2018: 550). The result was an effective decrease in discretionary spending, as what little resources are left have to be directed on mandatory spending requirements, meaning a shrinking capacity to address issues of inequality, and an increase in intra-authority inequality and territorial injustice (Gray and Barford, 2018: 543).

This continued period of austerity - coupled with ongoing uncertainty about the future of public funding as the UK attempts to leave the EU - exacerbates the urgency of the preceding policy context to transition cities to greater sustainability, taking vital discretionary resources away from local efforts to deliver this transition. With the sharing economy to be examined as a potential pathway for decoupling production from material throughout, this thesis will examine the ability of local authorities to be able to nurture such innovation in their respective niche. In this way, the restrictive conditions imposed by austerity can be conceptualised as a form of economic sustainability – albeit more of a narrow financial sustainability – that may be able to act as a test for the longer-term sustainability of cities. However, in removing resources available for the implementation of new technologies, and for educating and affecting the behavioural changes needed, austerity may put considerable barriers in the way of any positive change. In certain situations, the level of loss of resources may mean that no attempt at delivering a transition to sustainability is possible as all efforts have to be focussed on ‘keeping the lights on’ and delivering key statutory services, pushing authorities closer to a narrative of ‘marginalisation’, rather than one of adaptation (Hastings et al, 2015).

3
RESEARCHING URBAN ECONOMIC SUSTAINABILITY IN THE UK

3 RESEARCHING URBAN ECONOMIC SUSTAINABILITY IN THE UK

This thesis sits not just at the intersection of multiple literature boundaries, but also epistemological ones. The discipline of geography is replete with debates about the merits of both quantitative and qualitative methods, which has led to the contention, framed both positively and negatively, of a methodological pluralism (Barnes and Sheppard, 2010; Hassink et al, 2014; Brenner, 2018). This chapter will outline the most pertinent aspects as they relate to the production of knowledge in this research context - namely the institution of the local authority and the attempts to harness organisational and external knowledge in the pursuit of innovation in this institution (Hartley, 2005; Rashman et al, 2009). In doing so the challenges of this context will be discussed. These challenges relate to the behavioural environment (Kirk, 1963) of local authority decision-makers, which allows the biased values and persuasion of self-interested agents and institutions to target the ambiguity of poorly abstracted or chaotic concepts (Sayer, 1992), inflating either their positive opportunities or negative impacts (Netter, 2016). These values cloud the evidence in the phenomenological environment and are exacerbated by a 'linguistic turn' in the public-sector that is driven by an influx of managerial gurus who extol the virtues of short-term business fads (Thrift, 1997). The contradictory framings that these factors create (Martin, 2016) make the identification of productive paths difficult for even the simplest of concepts, and most adept of decision-makers. However, the concept under consideration is the already chaotic sharing economy, and the path to be identified is towards sustainability, which has been widely identified as a wicked problem (Frantzeskaki et al, 2014; Roome and Louche, 2016; Engert and Baumgartner, 2016). As this chapter will discuss, wicked problems (Rittel and Webber, 1973) add further challenges due to the complexity of any solutions possible and the multi-dimensional nature of the problem.

This context underscores the need firstly for a systematic review, with which to reduce the chaotic nature of the sharing economy concept under consideration. And secondly the employment of a multi-level perspective framework with which to view innovation in the public-sector. The method of systematic review is therefore described, along with the semi-structured interview methods used to illustrate the attempts at implementing sharing economy innovation in local authorities. This chapter focusses on the framework and challenges inherent in these methods with some reference to how they were implemented in the pursuit of the research aims. More detail on the specific implementation can be found in the four papers presented in chapters 4-7. Chapters 4 and 5 detail the systematic review process, whilst chapter 6 and 7 describe the use of semi-structured interviews, with the latter incorporating this method into a case study analysis.

3.1 The Nature of Knowledge Production in Geography

Scholars of the history of geography, as well as those writing about narrower and more recent facets of social research, respectively link back to a re-emergence in the importance of non-foundational beliefs in geography (Livingston, 1992), and describe periods of 'enlightenment' in the development of critical social models (Bloor, 2011). They arrive, as many do, at a postmodern condition of complexity and heterogeneity in which a pluralism of beliefs, values, control points, and judgements, necessitates a plurality of methods and solutions. As Livingston asserts:

> "*The geographical tradition continues to be embedded in a wide range of conversations about the nature of human identity, space, and place…geographers will have to acknowledge that warranted knowledge is relative to a body of* ***beliefs****, not to a body of certitudes. Pluralism in the geographical academy is thus an inevitability*" (Livingston, 1992: 345, emphasis in original).

The question of 'methodological pluralism', and whether this is a positive or negative phenomenon for the discipline of geography still abounds (Barnes and Sheppard, 2010; Hassink et al, 2014; Brenner, 2018), with claims of a better fit with this postmodern condition of complexity, matched against concerns that this dilutes the discipline down to a meaningless abstraction[14]. This was codified as a quest for an 'engaged pluralism' against the risk of a 'fragmented pluralism' (Bernstein, 1988). Engaged pluralism emanates from a pragmatic and anti-monist approach to research that stretches back to James' (1912: 321) philosophical critique that "nothing includes everything" and through Kuhn's (1962) attack on scientific positivism. Underlining the 'two evils' of this debate in relation to economic geography, Barnes and Sheppard (2010: 194) lay out their case for an engaged pluralism as "allowing navigation between the Scylla of multiple solitudes and the Charybdis of monism". They highlight concerns about the monist approaches in mainstream economics (Amin and Thrift, 2001) and open up evolutionary economic geography, or at least an evolution in economic geography (MacKinnon et al, 2009), as a demonstration of how engaged pluralism can affect trade between sub-disciplines through cross-boundary terminology, such as path-dependence and lock-in. Providing the example of how championing local epistemologies helped to develop and improve Geographical Information Systems (GIS), Barnes and Sheppard (2010: 208) suggest that the value of this approach is "a more vibrant, interesting discipline, capable of generating complex, shifting understandings that reflect and shape equally complex and dynamic materialities".

[14] A lively panel session at the Fifth Global Conference on Economic Geography at the University of Cologne in 2018 explored the idea that economic geography has gone from "fragmented pluralism to an integrative paradigm". In this session Kendra Strauss argued that a pluralism of methods is not a problem but a benefit, while Michael Storper warned of "fetishizing difference" and instead advocated for agreed social scientific methods to incorporate diverse viewpoints.

For brevity, but with full acknowledgement of the reductionism employed, the two sides of this debate can most often be aligned with long-established quantitative and qualitative methodologies and the debate concerning their relative merits. Methodologies that stretch not just beyond the discipline of geography, but which form the basis of seemingly eternal philosophical debates about the nature of knowledge and knowing, and the respective merits of natural and social sciences. Whilst the content of this thesis and the methods employed foreshadow these much larger epistemological questions, there is insufficient space here to even begin to fully address them[15].

What this chapter offers is to highlight, briefly, the direction of travel of the beliefs and judgements of this researcher – as outlined in the positionality statement below - situating this thesis within the pro-pluralist, and qualitative approaches of an urban economic geography. It also sets the direction of travel of the research environment in question, namely the local government policy environment. It is to the 'behavioural environment' (Kirk, 1963) of decision-makers that we now turn, navigating the influence of 'cultural circuits of capital' (Thrift, 1997), and the many 'chaotic concepts' (Sayer, 1992) that create ambiguity for those seeking to harness organisational knowledge (Rashman et al, 2009) and innovation (Hartley, 2005) in the public-sector. Prior to this, a description of 'wicked problems' (Rittel and Webber, 1973) underscores the complexity of the problem of sustainability that adds further ambiguity to this environment.

3.1.1 Statement of positionality

This thesis doesn't just encompass research on behavioural environments but is also shaped by one in particular, that of this researcher. Within that environment are the key elements of who is conducting this research, their view of the world, and their relationship to the participants and to the research as a whole. To be able to understand the reflexivity of the research it is necessary to outline this positionality explicitly.

As a postgraduate member of the School of Geography at the University of Nottingham my academic background follows an anticipated track, with a Bachelor's degree in geography and a Master's in urban regeneration. My focus has always been on the human, social, and economic aspects of geography, with a particular interest in how those aspects manifest in the urban space. Between the completion of my Master's degree and my arrival at the University of Nottingham I was employed, and self-employed, across a range of roles spanning policy research, community capacity building, industrial sector development, and behaviour change. Each of these roles allowed me to gain further knowledge of how the urban space is constituted, in particular to understand the governance arrangements at the local level, and to experience some of the related processes.

This range of occupational experience has helped to cement a practical bias into the research that I conduct, with a desire to understand how current arrangements and

[15] For more detail on these questions of epistemology, I suggest starting with Johnston & Sidaway (2004), and Livingston (1992)

processes may be redesigned and improved. There has always been a close influence of the public sector in the work that I have undertaken and therefore I am most interested in what changes can be made by, and to, this sector so that improvements can be made to the urban space.

My conception of what constitutes 'improvements' is of particular interest within this statement as I have moved from early policy research roles on local economic development to project work in behaviour change roles - as well as this most recent research project – related to sustainable development. This transition has seen a shift away from narrow financial contributions to development and from equally narrow measures of success, such as GDP and GVA. And towards a more holistic understanding of how the economic, social, and environmental dimensions interact and towards much broader measures of success related to wellbeing and flourishing. This shift has included a focus on social and environmental outcomes, and on local organisation.

Whilst this background, the outcomes of interest, and the success measures preferred are relevant to all aspects of my research, they become particularly apparent in the business model chosen for analysis and in the thematic analysis section of my thesis. There are many business models that could be investigated as a pathway to sustainability, but I have gravitated towards a model that is, at its core, non-financial and representative of the 'diverse economy' of 'ordinary cities'. This is reinforced in my thematic analysis of the sharing economy, in which social and environmental factors are widely cited, along with many alternative options to financial measures. The subjective nature of this process means that my positionality plays an important part in how the critical success factors of the sharing economy are considered and aligned.

Beyond my professional and academic background, I must also be conscious of the broader demographic details that impact my analytical focus. The research I have conducted is almost exclusively based on perspectives from the Global North and, as discussed in the exclusion criteria of my systematic review, is comprised of only anglicised research. The latter is due to only being able to speak one language, and the former is largely a consequence of conducting research on local governance structures in England. But this is not the only factor, and I must acknowledge that my view as a white, English, male from a comfortable upbringing, will inevitably prejudice my focus to similarly minded research.

Outlining my positionality in this way can help to minimise this anticipated prejudices and supports a more reflexive approach to both the secondary and primary research within this thesis.

3.1.2 The difficulty of wicked problems

Sustainability has been repeatedly cast as a 'wicked problem', being described as ill-defined (Frantzeskaki et al, 2014), socially complex (Roome and Louche, 2016), and with long-term impact (Engert and Baumgartner, 2016), which, "requires a much more nuanced and broad ranging approach than traditional top-down policy

measures are likely to deliver" (Fudge et al, 2016: 2). Each of these contentions derives from a typology outlined by Rittel and Webber (1973). Here they suggest that during the period of industrialisation, planners and researchers were largely tasked with 'tame problems'. That is not to say that the problems were simple, but that they were usually of an engineering nature and had a single, logically reachable solution i.e. the problem of what to do with waste water can be solved by building sanitation systems, the problem of sickness can be solved by developing medicines etc. Wicked problems, on the other hand, have no single solution and identifying possible solutions requires reconceptualising the problem and acknowledging that it is likely a symptom of a bigger problem. In total, Rittel and Webber (1973) describe ten "distinguishing properties" of wicked problems:

1. **There is no definitive formulation of a wicked problem**: it can be addressed by focussing on many different factors, and deciding which one to address the problem from requires identification of all the factors and an assessment of what impact each solution might have on the problem. Therefore, "to find the problem is thus the same thing as finding the solution; the problem can't be defined until the solution has been found. The formulation of a wicked problem *is* the problem!" (1973: 161, emphasis in original)
2. **Wicked problems have no stopping rule**: given the above rule and due to the equally limitless judgements that can be made of a solution (see rule 3), "the would-be planner can always try to do better" (1973: 162);
3. **Solutions to wicked problems are not true-or-false, but good-or-bad**: the many stakeholders involved will have a spectrum of differing perspectives on whether a solution is good or bad and, "none has the power to set formal decision rules to determine correctness" (1973: 163);
4. **There is no immediate and no ultimate test of a solution to a wicked problem**: i.e. monitoring of progress or determination of success is extremely difficult and must be done with multiple measures over a considerable period. Even then, "the full consequences cannot be appraised until the waves of repercussions have completely run out, and we have no way of tracing *all* the waves through *all* the affected lives ahead of time or within a limited time span" (1973: 163, emphasis in original);
5. **Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial-and-error, every attempt counts significantly**: attempts to solve wicked problems have consequences and leave "traces" that cannot be undone. Likewise, "every attempt to reverse a decision or to correct for the undesired consequences poses another set of wicked problems" (1973: 163);
6. **Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan**: given the limitless possible approaches, decision-makers must have good judgement and, "the capability to appraise "exotic" ideas and…trust and credibility between planner and clientele that will lead to the conclusion, 'OK let's try that'" (1973: 164);
7. **Every wicked problem is essentially unique**: despite many similarities, wicked problems will have a "distinguishing property that is of overriding importance" (1973: 164). However, it can be difficult to be sure that the essential nature has been addressed by a solution rather than just the commonalities, this means that, "the direct transference of the physical-science and engineering thoughtways into social policy might be dysfunctional, i.e. positively harmful" (1973: 165);

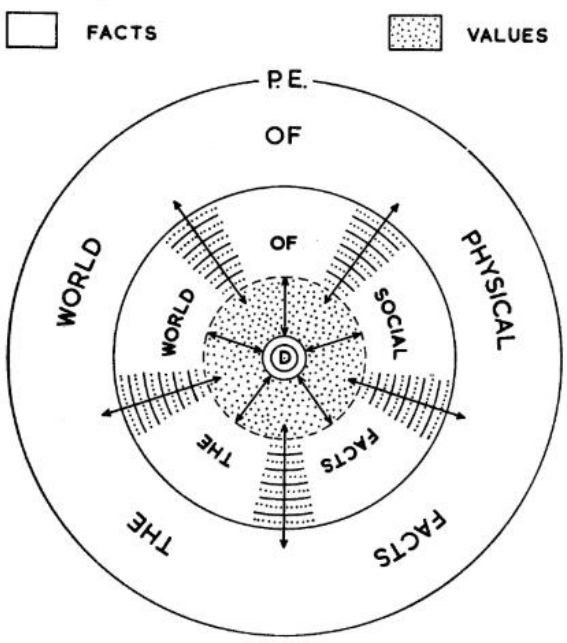
8. **Every wicked problem can be considered to be a symptom of another problem**: solving a problem starts with a search for the causal explanation of a discrepancy between how things are and how they should be (however defined). Resolution of this cause will highlight it as the symptom of a higher level cause and so on. The problem solver therefore needs to identify the appropriate (usually the highest) level on which to address their wicked problem, and should never seek to simply resolve a symptom;
9. **The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution**: this rules out logical hypothesis testing for wicked problems, because the criteria applied can always be disputed, and it is unlikely that all influencing criteria can actually be identified and incorporated. Rittel and Webber (1973: 166) assert that "the choice of explanation is arbitrary in the logical sense. In actuality, attitudinal criteria guide the choice…the analyst's "world view" is the strongest determining factor in explaining a discrepancy and, therefore, in resolving a wicked problem";
10. **The planner has no right to be wrong**: unlike the "game" of the scientific method, in which hypotheses are offered for refutation and each refutation can help to strengthen a solution, wicked problems make no concessions for failure of hypotheses. This is because "planners are liable for the consequences of the actions they generate; the effects can matter a great deal to those people that are touched by those actions" (1973: 167).

In distinguishing wicked from tame problems, Rittel and Webber (1973) strike at another aspect of the public-sector behavioural environment, a quest for efficiency. They suggest that efficiency "has long been the guiding concept of civil engineering, the scientific management movement, much of contemporary operations research; and it still pervades modern government and industry" (1973: 158). The solution to efficiency was the implementation of an "efficiency expert to diagnose a problem and then solve it, while simultaneously reducing the resource inputs into whatever it was we were doing" (ibid). Rittel and Webber (1973: 159) assert that this approach to problem definition results in an idealised, and cybernetic, planning process, but suggest that "such a planning system is unattainable [and]…it is even questionable whether such a planning system is desirable". Instead, a more pragmatic approach is recommended, one that situates the specific conditions of wicked problems within a broader social context. This increasingly differentiated space, "in which a plurality of publics is politically pursuing a diversity of goals" (1973: 168) does not lend itself to the pursuit of singular solutions/problems, nor the singular judgement of success or failure of any chosen solutions. Instead, "diverse values are held by different groups of individuals - that what satisfies one may be abhorrent to another, that what comprises problem-solution for one is problem-generation for another" (1973: 169). In effect, wicked problems such as sustainability, exacerbate the impact of values in the behavioural environment of the public-sector decision-maker, which is outlined next.

3.1.3 The public-sector behavioural environment

The 'behavioural environment' is an acknowledgement that decision-makers rarely operate in a solely empirical or phenomenal environment. Instead they are influenced by "a psycho-physical field in which phenomenal facts are arranged into

patterns of structures (*Gestalten*) and acquire values in cultural contexts" (Kirk, 1963: 366, emphasis in original). In this sense, "the social and physical facts of the Phenomenal Environment are shown to constitute parts of the Behavioural Environment of a decision-taker (D) only after they have penetrated a highly selective cultural filter of values" (ibid) – see figure 3.1.



P.E. = Phenomenal Environment
D = Decision-taker

Figure 3.1: The phenomenal and behavioural environment of a decision-taker. Taken from Kirk (1963: 367)

In reaching this conclusion Kirk (1963) begins by speaking to the pluralism debate in geography, highlighting the palindromic possibility of the discipline – is geography constituted of the geographic questioning of other disciplines, or is it arrived at through iteratively more specific geographic enquiry of the earth as a whole. Kirk describes this process as follows:

> "*Modern geography was created by scholars trained in other disciplines asking themselves geographical questions and moving inwards in a community of problems; it could die by a reversal of this process whereby trained geographers move outwards in a fragmentation of interests seeking solutions to non-geographical problems*" (Kirk, 1963: 359)

In trying to identify the distinct particularities that define the discipline of geography, Kirk rules out both methods and materials as a possible defining feature of a discipline. Instead he focuses on "what kind of problems in human experience have they been invented to provide the answers" (Kirk, 1963: 364). Here he asserts the environmental content of most geographical problems, identifying geography's identity as not separating out the specific aspects of nature, but instead "[retaining] its interest in environment not as a thing apart but as a field of human action" (Kirk,

2963: 364). By focussing on this problem, Kirk (1963: 364) deduces a "unified field of the Geographical Environment", as a combination of phenomenal and behavioural environments, which in turn are constituted of specific ideas, values, and awareness, in partnership with physical actions and natural phenomena. This iterative process of increasing granularity can bring in the pluralism of methods and multiple foci of study that contribute to solving geographical problems.

As outlined above in figure 3.1, the ideas, values and awareness that make up the behavioural environment are central to the interpretation of the phenomenal environment and ultimately to the actions taken by a decision-taker. As we will see in section 3.1.3, the impact of values in the behavioural environment of the public-sector decision-maker is particularly acute. This is because a range of values arise from the political complexities, as well as from the immediacy and diversity of needs that must be incorporated into any decision. And this impact is magnified when trying to develop organisational learning in the public-sector (Rashman et al, 2009). However, before looking at these idiosyncrasies, the influence of 'cultural circuits of capital' (Thrift, 1997) and 'chaotic concepts' (Sayer, 1992), are added to the complexity of this environment.

3.1.4 The influence of cultural circuits of capital and chaotic concepts

The already difficult behavioural environment of a public policy decision-maker, heavily imbued by nebulous values, has also seen a rise in what Thrift (1997) identified as the rise of soft capitalism – a rapid growth in management knowledge emanating from an equally explosive growth in business schools. Thrift describes this as a 'linguistic turn' coupled with a rise in, often self-styled, management gurus, who together create a 'cultural circuit of capital'. This has led to an excessive number of 'business fads' (Lorenz, 1989), of which the sharing economy could arguably be one.

Thrift (1997: 35) focusses on the interchange between business and academia, and points out an irony that whilst universities are aiming to be more business-like, businesses are attempting to be more like universities. The same can also be considered of the public-sector (and local authorities in particular), as a common refrain is for them to be more business-like, with organisational restructures, renaming of roles, and the inevitable "pain, heartbreak, and shattered lives" (Thrift, 1997: 50) that come with the concomitant programmes of downsizing – what Thrift refers to as the "hard edge of soft capitalism" (ibid). Thrift highlights another irony as the successful spread of this kind of managerialism requires a considerable level of trust between agents, trust which is hard to engender in an institution being systematically 'delayered'. This poses an even greater concern for local authorities, who are being delayered by managerialism, stripped of discretionary spending by austerity, and, in the case of the authorities in this theses, trying to develop sharing economy innovations whose core currency is trust.

Thrift (1997: 51) provides some hope, suggesting that inherent "tensions and contradictions…brings with it the opportunity for new kinds of resistance and subversion". He points to opportunities within three distinct alternative economic

practices, dispersed corporate ownership; social investment; and social banking. Within the latter he suggests Local Exchange & Trading Systems (LETS) are an example of new models of practical critique, "born out of actual attempts to produce new forms of economic institutions which are both immediately feasible and radically democratic" (1997: 52) and which provide the opportunity of "turning soft capitalism back on itself" (ibid). In this sense, the sharing economy, often associated with the literature on LETS and other forms of community exchange, could be conceptualised as having the potential to open up more radical forms of institutions, but equally could be written off as another managerialist 'business fad'.

Sharing many aspects of business fads, 'chaotic concepts' (Sayer, 1992) add more values to the behavioural environment of our public-sector decision-maker. Sayer (1992) draws heavily on Marx (1858) and his concern for what he calls "abstract determination", or the assumptions inherent in a concept. He provides the example of 'population' which itself can be divided into classes, which in turn are dependent upon aspects of wage labour and capital, which can be explored through questions of value, money, price etc. Each point offers the potential for a concept to be defined, with the former the most chaotic and the latter offering a more 'rational abstraction'. This rational abstraction is a concept that "isolates a significant element of the world which has some unity and autonomous force, such as a structure", and can be contrasted to, "a bad abstraction [that] arbitrarily divides the indivisible and/or lumps together the unrelated and the inessential, thereby 'carving up' the object of study with little or no regard for its structure and form" (Sayer,1992: 138). Sayer (1992: 139) suggests that despite the simplicity and apparentness of the need for rational abstractions, the social sciences abound with chaotic concepts. This accusation can also be made of the sharing economy. As highlighted in section 2.5, the academic literature on the sharing economy utilises many overlapping economic and social concepts, making the sharing economy as a concept less rational and more chaotic. Similarly, this section describes the 'contradictory framings' (Martin, 2016) applied to assessments of the sharing economy, whilst Netter (2016) outlined the influence of 'availability entrepreneurs' on over-selling the potential of the sharing economy.

It is this chaotic behavioural environment that demands more analytical clarity in order to begin to consider the sharing economy as a possible solution to the wicked problem of sustainability. This demand is to be satisfied by way of a systematic review of the literature, which is described in section 3.2. A number of local authorities have already attempted to develop their own innovations to address this wicked problem, and it is these attempts that are the focus of this thesis. Before outlining the specific research methods employed to analyse these attempts, there will now follow a consideration of innovation in the public-sector (Hartley, 2005) along with the development of organisational learning and knowledge in the public-sector (Rashman et al, 2009).

3.1.5 Developing innovation in the public-sector environment

This is still a relatively under explored area of research, because, as Rashman et al (2009: 487) point out in their systematic review of organisational knowledge, "there

[is] a tendency to assume by default that the context was the private-sector firm, and that 'the firm' is synonymous with 'organization'". However, this creates a number of contextual problems, most notably that the goal of the public-sector differs considerably from the goal of the firm. The former seeks innovation and learning in order to disseminate best practice and deliver public value, whereas the latter seeks innovation as a way to gain a competitive advantage to enhance market position and fend off competition. In addition to the differing goals, the public-sector constitutes a much more difficult and complex innovation environment:

> "*Public organizations face additional pressures to those on private companies, requiring judgement to take into account the complex knowledge requirements of national policy priorities, as well as formal political and contested national and local needs*" (Rashman et al, 2009: 487)

This environment makes the genesis of innovation much harder to identify in the public-sector, and runs counter to the ubiquitous view of a single entrepreneurial agent in a firm, who's individual creativity can spark a fast, and seemingly exponential, shift in technological advancement, social practices, and profit. Hartley (2005: 53) highlights this difficulty, suggesting that, "the idea of the creative individual engaging in innovation single-handedly is very limited" and that there needs to be a much greater importance placed on "groups, teams and a critical mass of support" (ibid).

Bloor (2011) points to another complexity of the public-sector, the apparent lack of any identifiable individual whose responsibility it is for making policy. This role seemingly deferred to an anonymous higher authority, with those individuals surveyed, particularly at the local level, merely enacting policy:

> "*No one knowingly makes policy; for reasons perhaps of protective coloration everyone is convinced that they are mere policy-implementers, simply interpreting and elaborating edicts passed down from some more august authority*" (Bloor, 2011: 410)

Bloor (2011: 401) in making the case that "the policy community is not the sole audience for qualitative social research", situates the anti-monist concerns of an engaged pluralism within the public policy environment, asserting that, "it is no longer universally accepted that planned intervention is capable of bringing about desirable social change, or that scientific knowledge can facilitate this, or that social research can produce such knowledge" (Bloor, 2011: 401). Instead, Bloor (2011) advocates for a focus on practitioners and how their inclusion as both research participants or commissioners can develop new practices, or the modification of existing ones. Even if those practitioners do not have the local autonomy by which to develop new services, they do have the autonomy to modify their everyday practices, and it is here that the researcher can demonstrate and encourage such modification.

It is this complex local government policy environment that forms both the niche and large parts of the regime level of the multi-level perspective (MLP) identified in section 2.3. An outline of how this MLP framework is to be utilised in qualitative research on local government innovation is provided below. Prior to this, and in an attempt to minimize the chaotic nature of the particular concept to be studied, the sharing economy, a systematic review of the literature on this concept was performed.

3.2 A Systematic Review of the Sharing Economy

The method of systematic review is itself a microcosm of the quantitative and qualitative epistemological values debate outlined above. Emanating from health and medical science research as a way to more accurately assess interventions (Higgins and Green, 2008), the systematic review has seen a slow adoption into the social sciences (Petticrew and Roberts, 2006). In doing so the systematic review adds a quantifiable “proceduralisation” to the messy interpretive “authorship” approach of traditional literature review (Dixon-Woods, 2011: 332). And is considered to provide a “more neutral, technical process” (Jesson, 2011: 15) that can help to remove - or at least clearly highlight - potential biases; handle the ever-increasing amounts of information available; and make the process easier to replicate and test. In these respects, “it is less of a discussion of the literature, and more of a scientific tool” (Petticrew and Roberts, 2006: 10).

Despite gaining greater prominence within social science and even within policy making circles, the systematic review approach has been criticised, particularly when applied "to address questions with the higher level of uncertainties and ambiguities that are characteristic of the social world" (p.335). The more positivist and potentially reductionist approach places a high level of rigidity on the process of literature review, with accusations that “the approach degrades the status of reading and writing as scholarly activities” (MacLure, 2005: 393). Whilst others have questioned if the evidence-based practice movement is doing more good than harm (Hammersley, 2005). This latter contention focusses on the “distinction between practitioner opinion and research evidence” (Hammersley, 2005: 94), and mirrors the distinction between behavioural and phenomenal environments in suggesting that, “while research can provide evidence about the consequences of various policies, on its own it cannot tell us what is the best thing to do, either in general terms or in particular cases” (Hammersley, 2005: 95). Despite these criticisms, and when appropriately applied to address specific questions or to pinpoint the details of previously ill-defined topics, there are increasing examples of its application in the social sciences (Durugbo, 2016; ter Huurne et al, 2017; Walter and Block, 2016), including in considering policy questions and economic evidence (Shemilt et al, 2010; Rashman et al, 2009; Osborne et al, 2016), as well as to explore aspects of sustainability (Upward and Jones, 2016; Lorenz et al, 2014; Morioka and Carvalho, 2016).

The systematic review was therefore employed as the first step in this thesis to provide the neutral foundation with which to analyse the increasing information,

emanating from multiple disciplines, on the nascent concept of the sharing economy. Focussing on the question, 'what are the critical factors that define the sharing economy?', the systematic review of the literature would provide greater analytical nuance to allow for further exploration of this concept as a potential pathway to urban economic sustainability. This section will provide a brief overview of the process employed, with further detail to be found within chapters 4 and 5 of this thesis.

3.2.1 The process of systematic review in the social sciences

The process of systematic review was developed in the health and medical sciences, and is most readily associated with the work of Cochrane. This international institute provides a repository of all existing reviews and hosts a network of 13,000 members and over 50,000 supporters from more than 130 countries, who continue to advocate for, produce, and disseminate up-to-date systematic reviews[16]. Most importantly, Cochrane is responsible for the 'Cochrane Handbook for Systematic Reviews of Interventions' (Higgins and Green, 2008). This 650-page handbook sets out 40 specific protocols to be included in all Cochrane systematic reviews. This highly proscribed format is to allow for data from multiple Randomised Control Trials (RCTs) to be incorporated and compared.

This data contrasts starkly to that which is available for a systematic review in the social sciences. A Cochrane review requires experimental details that are just not available, or relevant, to qualitative data. Petticrew and Roberts (2006) instead provide a seven-stage process for systematic reviews in the social sciences – see table 3.1. Despite this significantly simplified process, the overarching characteristics still follow those set out by Cochrane relating to a clear problem definition; a reproducible methodology including explicit search, validation, and inclusion criteria; and a defined method of synthesis and dissemination (Higgins and Green, 2008: 6).

Table 3.1: The seven stages in carrying out a systematic review (adapted from Petticrew and Roberts, 2006: 27)

Stage	Description
1	Clearly define the question that the review is setting out to answer, or the hypothesis that the review will test, in consultation with anticipated users.
2	Determine the types of studies that need to be located in order to answer your question.
3	Carry out a comprehensive literature search to locate those studies.
4	Screen the results of that search (that is, sift through the retrieved studies, deciding which ones look as if they fully meet the inclusion criteria, and thus need more detailed examination.
5	Critically appraise the included studies, and
6	Synthesize the studies, and assess heterogeneity among the study findings.
7	Disseminate the findings of the review.

[16] All information regarding size of membership is taken from the Cochrane website, where more information and the Cochrane Library, can be accessed - https://www.cochrane.org/about-us

How these stages were undertaken is laid out in detail in chapter 4 and 5, but of particular note is that the process resulted in the inclusion and synthesis of 91 peer-reviewed academic papers on the sharing economy. This synthesis was undertaken using a thematic mapping method (Braun and Clarke, 2006) to first identify the primary factors, and then to situate them in a system to highlight the aspects of the sharing economy. The thematic mapping process followed the six phases outlined in Braun and Clarke's (2006) widely cited approach – see table 3.2.

Table 3.2: The six phases of a thematic analysis. Adapted from Braun and Clarke (2006: 87)

Phase	**Description**
1. Familiarising yourself with the data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

This process resulted in the identification of 169 factors and highlighted access to under-utilised resources and scalability as the most central to the sharing economy. Further meta-analysis identified nineteen prominent factors appearing in at least 25% of the papers reviewed, situating the sharing economy within broader digital and social economies dominated by factors of information and communications technology, platforms, peer-to-peer (P2P), consumption, trust, and community.

Both the systematic review process, and the inclusion of a thematic mapping analysis as the method of synthesis, were approaches designed to reduce the chaotic nature of the sharing economy concept. The breakdown of its constituent factors and identification of the most central and unique ones provided a more rational abstraction, allowing the impact of the values projected on to it in the public policy environment to be reduced. Following the creation of this conceptual foundation, semi-structured interviews with experts were undertaken to establish what attempts are being made at the local level to adopt scalable platform technologies that enable access to under-utilised assets.

3.3 Primary Research Design and Methods

Having better understood the unique and most central factors of the sharing economy, an investigation of if, and how, the opportunity is being exploited, could be undertaken, the results of which are included in chapter 6. The aim of this investigation was to address the research question of whether sharing platforms can be employed to deliver public services more effectively? With the focus on implementation at the city level, it was necessary to understand what, if any, activity already exists, as well as what opportunities may exist to adopt sharing economy platforms. The factors that enabled existing activity to occur, as well as the barriers that are preventing opportunities being realised, were highlighted, with particular attention being paid to partners involved, funding requirements, fit with local priorities, and concerns regarding local impact. Having just completed a systematic review of the term sharing economy, due to the chaotic nature of the concept, an investigation of how this term is understood by practitioners was also included in the research design – see figure 3.2.

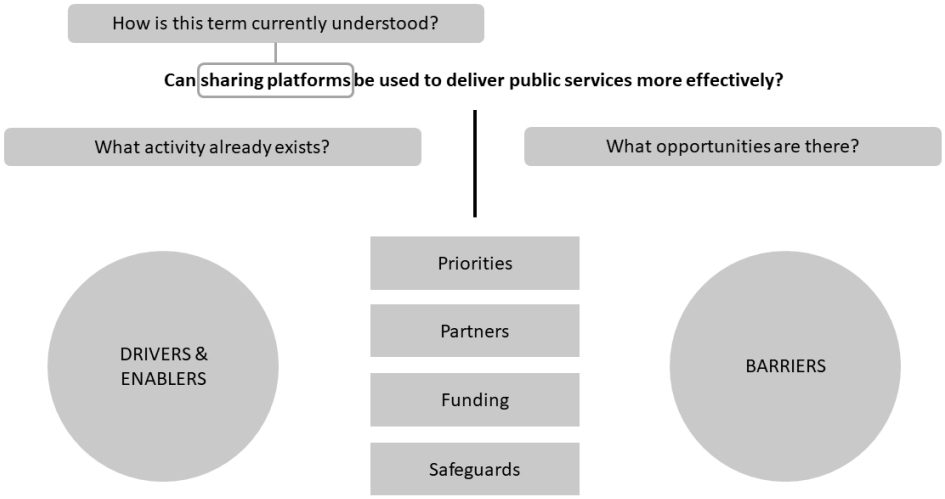


Figure 3.2: Research design

In order to address the research question and complete the corresponding objectives, it was agreed that the most appropriate method would be semi-structured interviewing. Semi-structured interviews were chosen over structured interviews, because the range of possibilities and impacts was so great that it was difficult to rigidly predict in advance the variety of specific questions that would be needed. The potentially chaotic understanding of the concept, allied with the complexity of possible implementation necessitated the semi-structured format, which would allow the "interviews [to] unfold in a conversational manner offering participants the chance to explore issues they feel are important" (Longhurst, 2011: 103). The semi-structure was provided by the elements of the research design shown above.

With the local authority as the institution under investigation, the most appropriate practitioners had to be chosen. Senior level local government practitioners were

chosen as participants because they had the broad view required of activity taking place within urban areas. Because sharing platforms could conceivably be implemented in many different aspects of local public service delivery, it would not be effective to only target a particular sector or community. The portfolios of senior directors in local authorities are high level and broad enough for them to capture the range of activity that is, or isn't, taking place. This broad view usually means that the technical detail of implementation may not be as forthcoming, but this was not the intention of this stage of research, and would be addressed later in follow up case studies. The detail required related to the general political and funding regimes, which was knowledge that these participants would be more likely to possess. Interviewing participants who can be considered as expert practitioners requires overcoming certain methodological difficulties.

There is an extensive literature on methods and difficulties of interviewing elites (Ward and Jones, 1999; Ostrander, 1993; Harvey, 2011). And whilst this focusses predominantly on economic elites, there is considerable reference to policy makers, and to a lesser extent, practitioners - such as the local government practitioners considered here. Of most relevance from this literature is the corresponding issues of access, trust, and rapport (Mikecz, 2012) and the fact that there is an element of "studying up" (Hunter, 1995) i.e. the participant is considered to be the expert (Burgman, 2015) and holds certain aspects of power and status in the researcher-participant dynamic (Limerick et al, 1996). This power dynamic creates the difficulties in gaining access, acquiring trust, and building rapport.

3.3.1 Interviewing elites - gaining access

The first barrier of access is regarded as, "one of the most pressing research concerns", and, "the researcher's success in this regards will have a significant effect on the nature and quality of the data collected…and, ultimately, on the trustworthiness of the findings" (Shenton and Hayter, 2004: 223). Fortunately, local government practitioners provide some reduction in the access barrier. The participants of interest in this research are at the senior director level in the local authorities. This means that the contact details for a significant proportion of potential participants are freely available via a brief search of local authority websites or organisational charts. Whilst having accurate contact information is only one aspect of access, being able to approach potential participants directly via email allows the full details of the research to be outlined to the them – assisting in acquiring trust, as described below – and reduces the potential for gatekeeper issues – information not being properly conveyed, or not conveyed at all. However, the seniority and role of the potential participants does pose scheduling issues, as they can often have meticulously planned work days that offer only short, and limited, windows in which to access them. To reduce this issue, considerable advance notice, as well as a broad availability, was provided. Participants were able to choose the location, data and time of the interview, and no restriction was placed upon when the interview must be conducted by.

To further reduce the issue of access, a much larger pool of potential participants was identified. This meant that the successful response rate could afford to be

lower in order to achieve a sufficient number of participants. Sufficient in this case demands a high enough number of participants to be able to identify possible case study examples for more in depth study, and to be able to make a reasonable assessment about the understanding and adoption of sharing economy based platforms. Whilst a larger number is almost always preferable, the intended use of the data is of most importance in defining the sufficient sample level (Rice, 2010). When undertaking data modelling or making broad generalisations this number must be very high to ensure robustness and to reduce possible biases. On the other hand, intensive case study analysis may only require a single participant, as long as generalisations are avoided and there is instead a focus on the theoretical reasoning that is generated (Richards, K., 1996). Given the intended uses outlined it was agreed that 20-30 interviews would be sufficient. Contact information was found for 104 senior directors in 48 urban local authorities in England. Email requests were sent to all of these contacts, with twenty-four interviews agreed and conducted, covering eighteen different local authorities in England. This represents a response rate of 23%, covering 38% of the authorities contacted.

3.3.2 Interviewing elites – trust and rapport

Acquiring trust was a particularly difficult aspect of these interviews. Ostrander (1993) suggests that trust should be developed over time, with as much time spent on this prior to the interview. Because all of the potential participants were 'cold', with no prior relationship or meeting, there was very little opportunity in which to acquire this trust. This meant that the first approach had to be tailored and pitched appropriately. Harvey (2011) describes how to engender trust prior to an interview:

> "*Before an interview, I try to be as transparent as possible and provide respondents with the following information: who I am, where I am working, what the nature of my research is (in non-academic jargon), who is sponsoring me, how long the interview will take, how the data will be used, where the results will be disseminated and whether the information will be attributed or anonymous*" (Harvey, 2011: 433)

The amount of information that needed to be provided in order to develop the trust required, meant that this could not easily be achieved via cold-calling. An initial email approach was chosen as this information could be succinctly outlined – see appendix 1. If no response was forthcoming within two weeks, a follow up email was sent, and two weeks following this, a phone call was made. In this instance, reference could be made to the previous emails so the information needed to build trust was not quite so 'cold'. Those who agreed to take part, or who requested further information, were sent a participant information sheet (see appendix 2) outlining the research and answering any questions or concerns they have regarding ethical procedures – a consent form (see appendix 3) was also sent and signed copies obtained prior to interviews taking place. The provision of information was kept succinct, partly as it is unlikely that these practitioners would be interested in reading an overly detailed review, but also so as not to prejudice the opening question in the interview, discussed below.

Following these methods of acquiring trust, rapport on the day of, and during the interview is needed, in order to elicit honest answers (Mikecz, 2012). To help build rapport interviews were ideally conducted face-to-face. This was not always possible due to the time pressures of the participants highlighted above, and in these cases telephone interviews were conducted instead - exactly half (12) of the interviews were done via each method. There is research that suggests that there can be a loss in the quality or range of data that can be collected via telephone due to the loss of the informal, non-verbal communication (Cresswell, 1998), and suggestion that the telephone should only be used for short, structured interviews (Fontana and Frey, 1994). However, others accept that the telephone may be needed to overcome access issues and to reduce the imposition on participants (McCracken, 1988), while a number of studies suggest that even for long, qualitative, and semi-structured interviews, there can be no distinguishable change in quality of the data compiled (Fenig and Levav, 1993; Miller, 1995; Sturges and Hanrahan, 2004).

As suggested by Healey and Rawlinson (1993) and outlined in the research design above, interviews commenced with an open question, helping to put the participant at ease, and starting the interview off on the "right note" (Mikecz, 2012: 484). The use of senior-level local government practitioners does provide some difficulties in building rapport. The current period of austerity and subsequent funding cuts imposed to their budgets, may provoke some difficult areas of discussion. In addition to the squeezing of their schedule reducing access, there is a concern that participant's focus may be on their marginalising narrative, which could create defensive responses. There is also the risk of receiving carefully spun success stories that try to paint as positive a picture of their local area and do not relate to the aims of the research. It was hoped that the positive innovation and sustainability narrative would help to reduce these concerns, and focus the responses. Similarly, by locating the most provocative questions about funding around the middle of the interview, it was hoped that enough rapport could have been built to minimise the impact (Richards, D., 1996).

3.3.3 Semi-structured interviews with local authority practitioners

All interviews would open with the question, what is your understanding of the term 'sharing economy'? This would address the objective of what understanding there was within the local authority, but more importantly help to frame the rest of the interview. By eliciting the participants unprompted response, the understanding could be identified, following this, the more specific rational abstraction of the sharing economy would be provided so that only the most pertinent examples would be discussed. As highlighted above in relation to acquiring trust, some aspects of understanding had to be contaminated through the prior provision of information regarding the nature of the interview, and by any further requests for information from the participants in order for them to agree to be involved.

Following this specific definition, examples of any existing activity would be requested. From the most relevant examples, the drivers of activity – local

priorities, funding requirements, partners, and safeguards – could be identified. After this exploration, or if no activities were highlighted, opportunities to implement sharing platforms could be considered. Instead of the drivers of activity being discussed, the possible barriers to such activity would be explored instead, and the conversation would again be focussed around the same four factors.

In order to identify themes within the interview data, all the participants were asked to consent to having the interviews recorded (see appendix 3). These recordings were then transcribed and the transcripts added to the qualitative research programme, Nvivo. Within Nvivo each interview was coded to aid the comparison across participants and themes. An initial set of code groupings (themes) were used to assist this process, and which reflected the research design above. This resulted in eight core themes: understanding; activities; opportunities; enablers; barriers; funding; partners; and priorities. Six of these themes involved objective and discrete categories that listed out the specific activities, opportunities, funders, partners, or priorities that were discussed. The understanding, enablers, and barriers carried greater subjectivity, raising questions of reflexivity and on the assumptions and values applied during this reflexive extension of more 'practical knowledge' (Schirato and Webb, 2002). The codes chosen (and not chosen), as well as the boundaries of what was included (and excluded) within each code were imbued by the positionality of the researcher i.e. "one's position within the social world influences the way in which you see it" (Temple and Young, 2004: 164), with implications for the research outcomes and interpretations. It was the aim of this research to provide as objective a view as possible of these more subjective codes, but any potential bias must also be acknowledged.

A quantitative analysis of the most frequent codes under each theme was conducted, the results of which are provided in the series of tables in chapter 6. While a qualitative comparison of the enablers and barriers forms the basis of the discussion in this chapter.

3.3.4 Longitudinal case studies

The final aspect of this research involved developing more technical case studies of the most relevant examples highlighted during the interviews. Gerring (2004: 341) suggests that case studies are "best defined as an intensive study of a single unit with an aim to generalize across a larger set of units", though cautions over the nature of the generalisations made, concluding that "the case study method is correctly understood as a particular way of defining cases, not a way of analyzing cases or a way of modelling causal relations" (ibid). To provide this intensity, a mix of primary and secondary data would be used to compile the case studies (Gerring, 2007: 68). Usage statistics and outputs would be taken from annual reports, project updates, as well as from data published publicly through the respective platforms. However, a 'thick description' of the process was required to help interpret the complexity of this process i.e. "a method that directs interpretive attention not only to material practices but to the nuances, affects, multiple codes of meaning, silences, jokes, parodies, and so on, that accompany them" (Gibson-Graham, 2014:

S148). This thick description required a more in-depth data collection, and so semi-structured interviews would again be employed. Instead of interviewing Senior Directors in the local authority, the programme managers responsible for the actual implementation of the sharing platforms were chosen, allowing their more technical expertise to be collated.

Two case studies were produced, based on platforms identified during the original interviews. This enabled a side-by-side comparison of approaches from different local authorities, with different contexts. To assist with this comparison, and to frame the data collection for the case studies, the MLP innovation framework (Geels, 2002) described in section 2.3, was applied. This enabled the different niche and regime level factors to be identified in each case study so that their ability to nurture innovation, and interact with the socio-technical configuration of the regime, could be compared. The aim of these cases studies was to understand the successes and challenges in implementing a sharing platform within a local authority. By analysing the approaches, the local authority niche and regime would be assessed to understand how innovation is nurtured in this institution, and whether this nurturing can support the delivery of a transition to sustainability.

The original interviews were conducted between Dec 2017 and Jan 2018, during the same period of interviews with the senior directors. The follow-up interviews in May and June 2019 were with the same programme managers. All interviews were kept semi-structured, with an open-ended opening question merely asking for a broad update of activity since the original interviews. The semi-structure in these interviews was built around a number of the socio-technical factors identified in the MLP framework – see table 3.3. Particular attention was paid to the approaches taken to engage local communities in order to reach critical mass; the support provided by the local authority as both a niche and regime actor; and the attempts to ensure the long-term viability of the platform after the initial funding period.

Table 3.3: List of coding nodes adapted from multi-level perspective criteria in Geels (2002)

Niche	Actors
	Business Model
	Critical Mass
	Governance
	Human Resource
	Promotion
	Resources-Funding
	Skills-Knowledge
	Technology
	Users
Regime	Actors
	Austerity
	Data-Privacy
	Infrastructure
	Markets

	Motivations
	Networking
	Policy-Regulation
	Politics
	Sector
	Priorities-Goals
Landscape	Culture
Outcomes	Challenges
	Comoodle
	Metroflows
	Platformisation
	Self Sustaining
	Share Peterborough
	Sustainability

As with the earlier interviews, they were recorded, transcribed, and entered into Nvivo to assist with the coding process and the comparison. Again, the process involved a mix of objective and more subjective coding categories that opened up potential avenues for bias to influence the research outcomes. Further issues were raised by the fact that during the time of the second interview, both programme managers were no longer employed by their respective authorities, and their roles had been incorporated into broader teams. Whilst this certainly opens up potential criticism that the views could be highly prejudiced and written off as the machinations of disgruntled former employees, both participants demonstrated a passion for their platforms and a desire for them to succeed beyond their involvement. It is the view of this researcher that the participants' distance from the local authorities in question actually enabled a more objective and honest view of the implementation process and outcomes of the platforms than would have been provided were they still involved in their delivery.

Analysis of the interviews found many similarities in the development of the platforms and therefore focussed on these specific factors – technology; funding; human resources; and marketing and promotion. The challenges encountered and the outcomes of the platforms also followed similar trajectories, with considerable effort focussed on making the platforms self-sustaining beyond the life of their original funding. To overcome the challenges and to address issues of long-term viability in this environment, recommendations for future innovation development in the local authority niche were outlined. These recognised that whilst there are specific pressures in nurturing innovation in this institution that may preclude it as a serious site to deliver a transition to sustainability, there are also unique characteristics that should not be discounted. The recommendations made were aimed at mitigating the risks whilst still allowing these unique characteristics to be harnessed. They are outlined, along with the case studies, in chapter 7.

4
CONDUCTING SYSTEMATIC REVIEWS AS A POLICY ANALYSIS TOOL IN GEOGRAPHY

4 CONDUCTING SYSTEMATIC REVIEWS AS A POLICY ANALYSIS TOOL IN GEOGRAPHY

Phil Northall, School of Geography, University of Nottingham

4.1 Abstract

Systematic reviews are a well-utilised resource in medical and health fields, used to identify best practice and to ensure effective interventions. Despite best practice and effective intervention being a primary concern of all social policy-makers, systematic review continues to have only a limited application in the social sciences, and in particular in geographic fields and policy analysis. This paper aims to remedy this shortfall by providing both a simple outline and case study of how to conduct a qualitative systematic review, presenting why they are particularly effective in the policy making environment. This effectiveness is premised on the ability to reduce bias in a politically charged 'behavioural environment', and to break down 'chaotic conceptions' into more 'rational abstractions'. This provides 'policy entrepreneurs' with incremental additions to knowledge that can deliver strong foundations for effective and reduced-biased policy solutions.

4.2 Introduction

In this paper I outline the method used to conduct a systematic review of the academic literature relating to the sharing economy. Whilst the topic under question is not the focus, in outlining the steps taken I provide a rare step-by-step account of the process of conducting a systematic review in the social sciences. In doing so I highlight the value of this method – most readily associated with quantitative research in medicine - to the analysis of qualitative material in the field of geography. Summarising the practical steps, I contribute an illustrative case study to the small, but growing, use of systematic reviews in geography, and in particular point to the ability of systematic reviews to improve the reliability of the knowledge that decision-makers have at their disposal when considering emergent policy.

The content of this paper foreshadows much larger epistemological questions related to quantitative and qualitative approaches, situating the development of systematic reviews within the long history of the changing nature of knowledge production (Johnston and Sidaway, 2004; Livingston; 1992; Cooper et al, 2009; Silverman, 2011). Whilst of great significance and interest, there is scant room here to account for these epistemological questions and geographical traditions anywhere near in full[17]. Instead I highlight topics of particular significance, notably, the rational abstractions needed to overcome 'chaotic conceptions' (Sayer, 1992;

[17] For more detail on these questions of epistemology, I suggest starting with Johnston & Sidaway (2004), and Livingston (1992)

Marx, 1858); the ‘behavioural environment’ of decision makers (Kirk, 1963); and the ‘multiple streams approach’ to empowering ‘policy entrepreneurs’ (Kingdon, 1984).

Before engaging with these topics, I will start by considering the role of the literature review in academic practice, and in the production of a PhD in particular, and the limited availability of a detailed formal process (Knopf, 2006). A brief history of the context of systematic review highlights the origins in the quantitative methods of medical research, while meta-analysis of systematic reviews underlines the current gulf in usage between health sciences and the social sciences – particularly within the discipline of geography. I then turn to the practical protocols of systematic review, demonstrating both the established Cochrane Review (Higgins and Green, 2008) method in health sciences, as well as the emerging processes employed in social sciences, and specifically that described by Petticrew and Roberts (2006). This highlights the major differences between the “conventional systematic reviews” (Dixon-Woods, 2011: 344) used in health sciences and the “hybrid systematic reviews” (ibid.) employed in the social sciences.

The case study then demonstrates the Petticrew and Roberts process by presenting the method and results of a systematic review of the sharing economy, illustrating the potential to use systematic reviews for policy analysis, as well as highlighting areas for improvement.

4.3 The Traditional Literature Review

Before exploring the literature on systematic reviews it is prudent to go back a step further and to explore the now standard use of literature reviews in academia. This will help to set the scene for a later discussion on the changing nature of knowledge production.

4.3.1 Qualitative research and the traditional literature review

With the focus of this paper on the discipline of geography - and in particular the qualitative approaches of human geographic analysis - one can point to some of the key texts and handbooks in geography for a basic outline of the literature review process (Silverman, 2004; Denzin and Lincoln, 2005; Cooper et al, 2009).

Denzin and Lincoln (2005: 3) suggest that, "qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world”. In highlighting the evolution of schools of qualitative research they note the role of the “bricoleur”, an oft-used analogy (Harper, 1987; de Certeau, 1984; Nelson et al, 1992; Levi-Straus, 1966; Weinstein and Weinstein, 1991; and Kincheloe, 2001) that compares the qualitative researcher to a quilt maker or film maker, and the idea of having to assemble disparate materials into a whole. Montage, pentimento, and jazz are other similes made to highlight this connection to a process in which the protagonist, "puts the sequences together into a meaningful emotional whole, as if at a glance, all at once" (Denzin and Lincoln, 2005: 5) rather than piecing things

together sequentially, one at a time. Ultimately, the aim of this bricoleur metaphor is to emphasise the interpretive nature of qualitative research and to underline the importance of reflexivity i.e. the idea that this work comes from a specifically unique situation that is wholly constructed by the biography of the researcher themselves.

This ethnographic approach can be contrasted with a more “pragmatic” approach to data analysis. Tim Rapley’s chapter in Silverman (2011: 276) extolls the need for methods of analysis to:

> “*Start with a close inspection of a sample of data about a specific issue. This close inspection is [then] used to discover, explore and generate an increasingly refined conceptual description of the phenomena. The resulting conceptual description therefore emerges from, is based on, or is grounded in, the data about the phenomena*".

Part of this process, Rapley suggests, requires a process of 'data reduction' to enable the bigger picture to be kept in view. To define this he quotes Miles and Huberman (1994):

> "*The process of selecting, focusing, simplifying, abstracting and transforming the data that appear in written field notes or transcriptions [or texts]…As data collection proceeds, further episodes of data reduction occur (writing summaries, coding, teasing out themes, making clusters, making partitions, writing memos)…Data reduction is a form of analysis that sharpens, sorts, focusses, discards, and organises data in such a way that 'final' conclusions can be drawn and verified*" (Miles and Huberman, 1994:10, quoted in Rapley, 2011: 283)

Despite approaching the task of qualitative research from different “interpretive” or “pragmatic” starting points, these accounts do not provide the practical detail needed to physically undertake qualitative research and are indicative of many of the methods handbooks. These key texts provide a grounding in many of the broad schools of qualitative research and the debates that surround them, but often pay little, or at least much less, attention to the step-by-step process of implementing the methods associated with these schools. Specifically in relation to conducting a literature review, others (Knopf, 2006; Healey and Healey, 2010) have sought to address this lack of a documented protocol. Knopf (2006: 127) begins by describing a “paucity of appropriate published sources”, highlighting a gap between the full length and hard to penetrate text books (Fink, 2005; Galvan, 2005; Pan, 2004), and the short and unciteable ‘how-to’ guides on the internet. The adaption of his own guide into a peer-reviewed and quickly digestible outline of how to do a literature review, addressed that gap specifically.

Knopf (2006: 129-30) states that a literature review should be comprised of three main elements, 1) areas of consensus, 2) areas of debate, and 3) gaps in knowledge, and that any proposed research should define its contribution to knowledge in

terms of one of these elements. This process, Knopf suggests, should go beyond the simple summarising of an annotated bibliography, employing a process of knowledge synthesis and critical analysis, which should therefore also, "present your considered judgments about what's right, what's wrong, what's inconclusive, and what's missing in the existing literature" (2006: 127). The value of this process is seen as not just about familiarising oneself with the topic, but also in identifying what has been done already and what gaps exist, inspiring ideas for further exploration and allowing such research to be situated within a broader framework of existing knowledge. This highlights your contribution to knowledge, and sets out how you plan to add to or alter the current understanding.

Adding to this guidance, and looking specifically at the approach of searching for literature to review, Healey and Healey (2010: 19) note the non-linear and messy process, referring to the frequent back and forth between key texts, papers, grey literature, and media sources, which is exacerbated as the process progresses and more sources, categories, and sub-categories are identified. This process can easily spiral out of control, and whilst Healey and Healey (2010: 30) do refer to a "systematic literature search" and provide a framework for conducting a literature review (2010: 20), a more illustrative diagram of this messy literature review process can be seen in Saunders et al's (2009: 60) 'upward spiral', shown at figure 4.1.

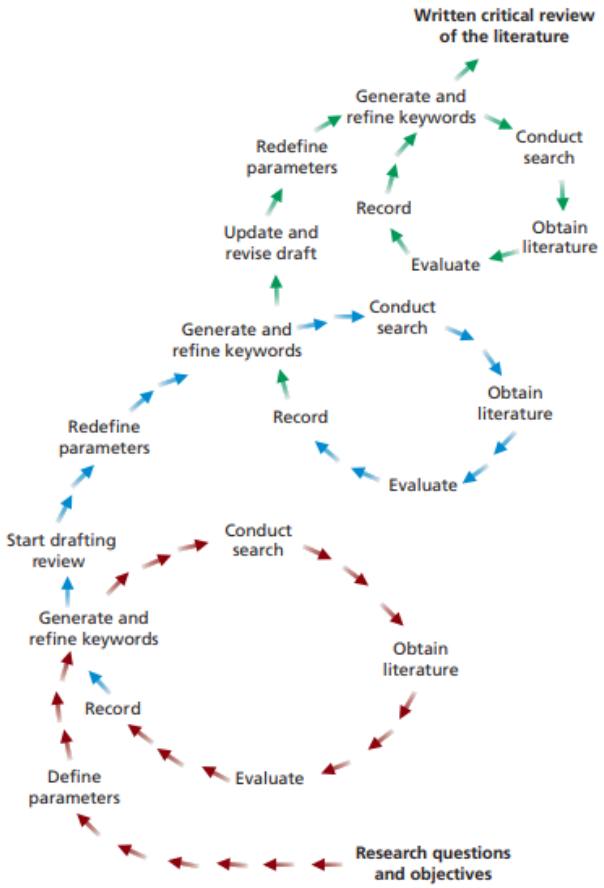


Figure 4.1: The literature review process. Taken from Saunders et al (2009).

The more formal nature of the systematic review and its explicitly stated protocols for each stage of the literature review process seeks to remove this messiness. The aim is for an easily replicable system of literature review with reduced bias, enabling a more robust and scientific synthesis of understanding on a given topic. The following section will outline the protocols employed, but will first explore why there is such an interest in making literature reviews more scientific in this way, and why some oppose these attempts.

4.3.2 Systematic reviews in context

In attempting to provide a neutral comparison of both traditional reviews and systematic reviews, Jesson et al (2011) point to the balance between having room for broad reflection and the potential for bias that can come with this reflection. The traditional review provides the space for critical reflection, but because the approach is heavily based on the personal selection of materials for review, "it may produce a one-sided or even a biased argument" (2011: 15). Systematic reviews are considered to be a "more neutral, technical process, which is rational and standardised, thereby demonstrating objectivity and a transparent process" (ibid), and due to this greater robustness, they suggest there is a rising trend in the insistence upon systematic reviews over traditional reviews. They note the dismissive downgrading of traditional reviews to 'traditional narratives', but warn that many researchers do not possess the skills to conduct a systematic review, and

if possible, the traditional review should be used as a scoping study prior to a systematic review (2011: 24). They also highlight a "knowledge management problem" (2011: 105) based on the "sheer volume of new research studies published these days" (ibid), and suggest that the systematic review is a tool that can begin to bring this problem under control. With advances in access to literature through online databases, it has made the process of conducting a systematic review less time consuming (2011: 23), which Jesson et al (2015: 15) assert, has led to an increase in their use in public policy, since, "systematic reviews are a useful tool for those seeking to promote research knowledge and put it into action" (ibid).

In considering the process of systematic review, Dixon-Woods (2011: 344) situates it within the "long history of epistemological contest between different paradigms", and focusses heavily on the differences between the quantitative and rigid systematic reviews – which she terms “conventional systematic reviews” (ibid), and the more interpretive “hybrid systematic reviews” (ibid.) needed for use in qualitative research. The plurality of methods used in qualitative research creates many difficulties and disagreements (Barnes and Shepperd, 2010), and is often left without consensus[18]. However, Dixon-Woods outlines a range of approaches within each section of the systematic review process, that show that the practice of systematic review is not solely a rigid method for medical analysis, and is moving towards being a "broad framework that allows multiple forms of evidence synthesis to be undertaken" (ibid.).

Dixon-Woods first differentiates between how the systematic and traditional literature reviews emanate from opposing 'contractual' and 'authorship' approaches respectively (2011: 332). The latter invokes the idea of a time-consuming scholarly tradition that iteratively builds the tacit skills and knowledge required to competently review and critique a topic and its key arguments, over a prolonged period of study. The former is described as a "proceduralisation of the process of review…a scientific process governed by a set of explicit and demanding rules oriented towards demonstrating comprehensiveness, immunity from bias, and transparency and accountability of technique and execution" (ibid.). And while there are many qualitative analysis tools that can be adequately incorporated into the process of "conventional systematic review" - such as content analysis, narrative summary, thematic analysis, or meta-ethnography - there are still those who simultaneously seek the legitimacy of a systematic review but are keenly aware of the "uneasy fit between the frame offered by conventional systematic review methodology and the kinds of epistemological assumptions and research practices more usually associated with qualitative research" (2011: 338). Rationalising this uneasy fit requires the modification or even rejection of some aspects of the conventional systematic review, and results in what Dixon-Woods would refer to as a hybrid systematic review. She also later describes this as

[18] A lively panel session at the Fifth Global Conference on Economic Geography in 2018 explored the idea that economic geography has gone from “fragmented pluralism to an integrative paradigm”. In this session Kendra Strauss argued that a pluralism of methods is not a problem but a benefit, while Michael Storper warned of “fetishizing difference” and instead advocated for agreed social scientific methods to incorporate diverse viewpoints.

"adopting a position closer to that of primary qualitative research than to conventional systematic review" (2011: 340).

In terms of procedures, Dixon-Woods outlines the characteristics and key headings of a systematic review (2011: 339-343), which align closely with the approach detailed by Petticrew and Roberts (2006) in the following section. The language and concepts employed by Dixon-Woods to differentiate between the different forms of systematic review is what is of most interest, aligning as it does with the classic, and ongoing, impasse between quantitative and qualitative research, what Maxwell (2004: 37) refers to as the "methodological polarization of the debate", in which, "quantitative and experimental assessments [are rejected] as artificial, intrusive, and disrespectful of clients, whereas critics dismissed qualitative studies as "anecdotal" and subject to irreparable biases". A systematic review in social sciences could then be seen as a way to aggregate these 'anecdotal' studies, and in seeking to quantify qualitative approaches it could be argued that the value of qualitative approaches may be eroded in favour of a wholly quantitative approach. This paper does not seek to "essentialise" an evidence-based approach within qualitative research, but it does support Maxwell's (2004: 36) contention that some, though not all, types of qualitative research can be scientific.

It is the aim of this paper to outline the potential for systematic reviews to be used in qualitative policy analysis, and a number of examples of such a use are already in existence in areas such as co-production in public services (Osborne et al, 2016); knowledge and innovation in public services (Rashman et al, 2009; Greenhalgh et al, 2004); collaboration networks in IT (Durugbo, 2016); consumer behaviour (ter Huurne et al, 2017); entrepreneurship (Walter and Block, 2016); and innovation (Pittaway et al, 2004). There are also a number of systematic reviews focussed on sustainability, including corporate sustainability (Antolin-Lopez et al, 2016; Searcy, 2012; Morioka and Carvalho, 2016); sustainable business models (Upward and Jones, 2016); environmental problem solving (von der Porten and de Loë, 2014); and adaptation to climate change (Bassett and Fogelman, 2013; Lorenz et al, 2014; Fogelman and Basset, 2014)

The focus in this latter area of research brought up a number of specific queries about the use of systematic reviews in this field, contributing to a debate about the rigour of knowledge production. Bassett and Fogelman (2013) conducted a traditional literature review and made explicit personal choices over which journals to include, in order to focus their review on a particular aspect of the 'adaptation' literature - namely the social science aspect. Lorenz et al (2014), critique this "narrow" focus and suggest that it both adds bias and removes the opportunity for replication, and would have benefitted from a more systematic review. In laying out their criticisms, and methodology for a "method more akin to that of the systematic literature review" (Lorenz et al, 2014: 252), Lorenz et al, discuss the value and importance of such approaches when considering the policy implications of new approaches:

> "*Firstly, it addresses the possible bias or subjectivity that can arise from the decisions researchers make when conducting a meta-analysis (Rudel, 2008). It also provides a robust foundation for evidence based decision making (Petticrew, 2001, Fedorowicz et al., 2011), yet is reproducible, rigorous and transparent enough to address the challenges of understanding and effectively synthesizing a rapidly expanding field of research and knowledge (Ford et al., 2012, Petticrew and McCartney, 2011). It thus helps to accurately highlight research strengths and weaknesses, avoid duplication in research and guide evidence based strategic planning (Ford et al., 2012)*"
> (Lorenz et al, 2014: 253)

They conclude that "systematic reviews can be a valuable tool in this context [where "literature remain highly fluid and somewhat fuzzy"] to comprehensively review a wide ranging and growing literature from which to understand changes to existing concepts, meaning and terminology as well as limits and barriers" (Lorenz et al, 2014: 255).

The original impetus of Bassett and Fogelman (2013) was to understand how a concept, adaptation, critiqued and rejected in the 1970s has been revived and been able to receive "broad acceptance…as a scholarly and policy priority" (2013: 42) in recent years, and they set out to "explore the extent to which the political economy critique of the adaptation concept has influenced how the concept is currently used" (2013: 43). Whether systematic or not, their aim related to the diffusion of knowledge in policy circles, and the debate centred around how such broad knowledge could be more precisely agglomerated and interpreted.

Fogelman and Bassett (2014) were correct in their contention that based on the explicit parameters they had set out - relating to use of the term in the social sciences and not more broadly than that – a systematic review would not significantly alter their findings. In asserting this claim they suggest that "SLRs [systematic literature reviews] are, however, largely a mismatch with the social sciences, particularly human geography. They attempt to find best practices and ideal interventions; our research did no such thing" (2014: 256). This caveat is an unfair misdirection. The statement that SLRs are not a good match for human geography bears no relation to their reason for not using an SLR, which was that they didn't set out to identify best practice. In fact, the identification of best practices is a common concern in much of human geography (Bulkeley, 2006), particularly in public policy analysis (Theodore and Peck, 2001), and it is the aim of this paper to demonstrate how and why systematic review principles can be a good match with the social sciences, and in identifying best practice for policy making.

4.3.3 Meta-analysis of systematic reviews in the literature

Whilst the above demonstrates that the process of systematic review is not new, this paper intends to assert that its application within the field of social sciences, in particular human geography, is currently very limited, and that its potential as a policy analysis tool is underutilised in this field. To illustrate the former argument, a meta-analysis of peer reviewed papers was conducted on the research databases

Scopus and Web of Science, two widely accepted databases for academic literature (Durugbo, 2016: 3752), and was based on a simple search of all papers with "systematic review" in the title only[19]. Focussing on Scopus first, this search revealed that well over half of the papers found were tagged as 'Medicine' – see figure 4.2 - while the top six most prevalent research areas (those shown in blue) are all health-related, and comprise over three quarters of all systematic reviews (though this does not even account for all the health-related categories). Social Sciences are ranked as the seventh most popular research area for systematic reviews (out of the 28 research areas listed), with 3,945 tags (shown in red), but only account for 2.87% of all tags on systematic reviews.

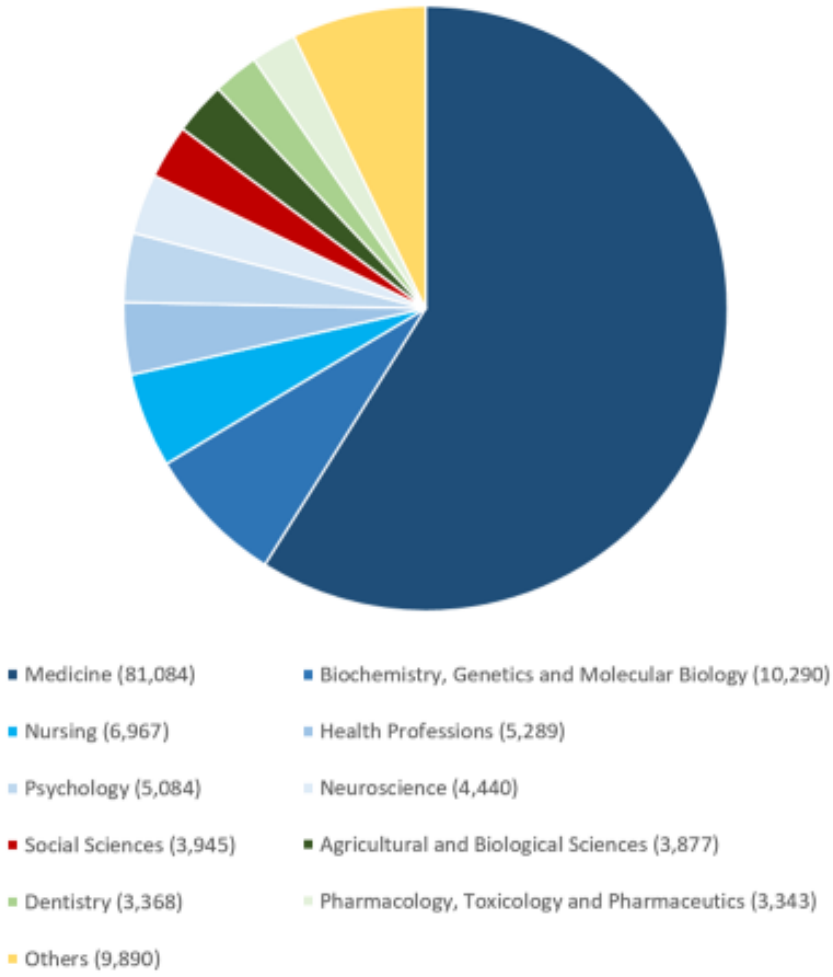


Figure 4.2: Top 10 research areas for systematic reviews on Scopus, all time.

Using Web of Science allows for a more granular analysis of research areas. Out of 151 different research areas listed, Geography is ranked 100th, being tagged on 234 papers, representing just 0.04% of tags. This is compared to over 25,000 papers tagged with the most popular research area for systematic reviews, Health Care Sciences Services (see figure 4.3). The majority of research areas for systematic review papers could be classified under a broader category of 'Health, Medicine &

[19] Analysis was conducted in May 2019.

Psychology', with the top 20 exclusively falling within this bracket, and the first social science area being, arguably, Business Economics, in 36th place with 5,000 tags.

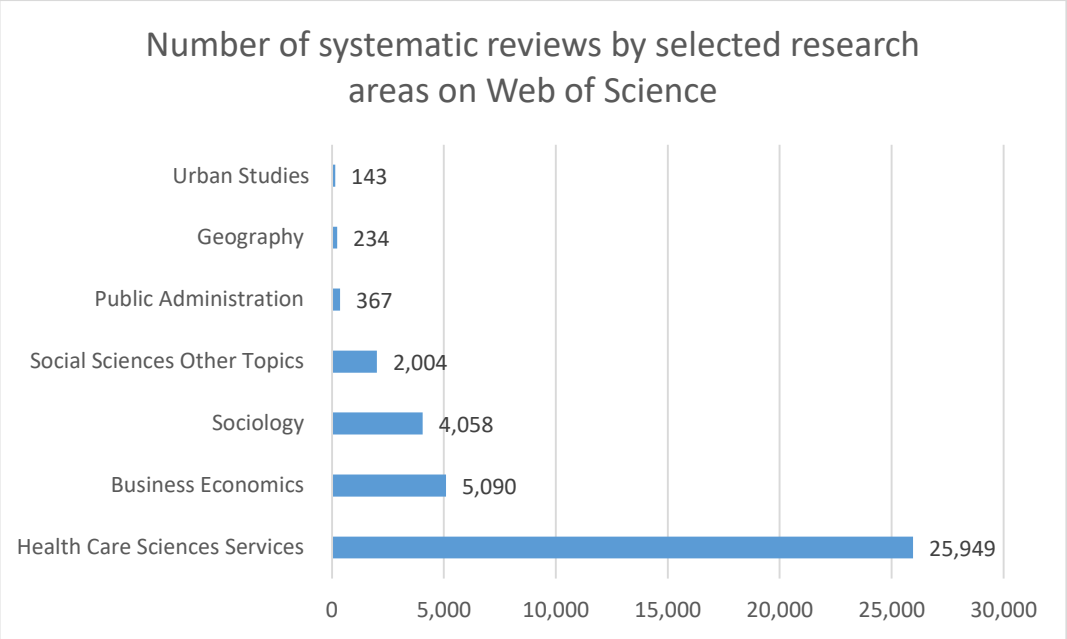


Figure 4.3: Number of systematic reviews by selected research areas on Web of Science, over all time.

Focusing solely on the 234 geography papers, and analysing the 1300 other tags used, 424 (32.6%) are also tagged with medical and health research categories. Similarly, of the most highly cited systematic review papers tagged with geography, half of the top ten also correspond to health research, with topics related to obesity (Wang and Beydoun, 2007); anaemia (Brooker et al, 2008); fecal contamination (Bain et al, 2014); pathogen transmission (Reiner et al, 2013); and hypertension (Anchala et al, 2014).

Even this limited analysis clearly demonstrates the gulf between the disciplines in terms of their use of systematic reviews, and the currently limited application of this method in geography.

4.4 The Process of Systematic Review

The process of systematic review began to gain significance in the late twentieth century, after a number of high profile errors in medical procedures emanating from poorly reviewed treatments. In particular the suffering, and even deaths, of infants due to the failure to systematically review studies of steroid use for premature labour (Evans et al, 2006), and due to the "untested logic" (Chalmers, 2007) of advice regarding the prone sleeping of infants that resulted in tens of thousands of avoidable cot deaths (Gilbert et al, 2005).

As a result of the increasing calls for an evidence-based approach to treatments, Tranfield et al (2003: 209) describe how “during the 1990s several organizations formed with the aim of establishing agreed and formalized procedures for systematic review”. They point to oganisations such as the National Health Science Centre for Reviews and Dissemination, the National Institute for Clinical Excellence, and, notably, Cochrane, the approach of whom I outline now.

4.4.1 The Cochrane Review

Established in 1993, and named after British epidemiologist Archie Cochrane, the use of 'Cochrane Reviews' or 'Cochrane Evidence' has become increasingly common. Early analyses of the impact of Cochrane, formerly the Cochrane Collaboration, found that it "increased access to vital knowledge", was "effective in criticising complacent and uncritical forms of health care based on assumptions of benefit rather than proof", and "encourag[ed] an evidence-based approach to practice, training, research, and policy making" (Volmink et al, 2004: 782), and as a result, "evidence-based medicine is closely tied to the Cochrane Collaboration" (Gambrill, 1999: 7).

The strength of their impact comes from the fact that Cochrane not only outline the protocols for conducting systematic reviews of interventions in the 'Cochrane Handbook for Systematic Reviews of Interventions' (Higgins and Green, 2008), but also provide a repository of all existing reviews, through the online Cochrane Library. They also cultivate a network of 13,000 members and over 50,000 supporters from more than 130 countries who continue to advocate for, produce, and disseminate up-to-date systematic reviews[20]. By doing so, Cochrane is able to, as its founder Sir Iain Chalmers outlines, provide:

> “*Two features which are rare if not unique. Firstly, the protocols of Cochrane reviews (that is, information about the Collaboration's “research in progress'') are routinely made available for public scrutiny and comment. Secondly, the Collaboration has established a system for incorporating new evidence in systematic reviews prospectively, and improving or correcting them when ways of doing so are identified*'' (Chalmers et al, 1997: 236-237).

This is aligned with a central principle in the 'Cochrane Handbook', that "systematic reviews adhere to the principle that science is cumulative and facilitate decisions considering all the evidence on the effect of an intervention" (Higgins and Green, 2008: 3).

Whilst there is a considerable value in analysing all aspects of Cochrane and its international network of collaborators, for the purposes of this paper I will focus on the protocols for preparing a Cochrane systematic review. These are laid out in the 650 page 'Cochrane Handbook' (Higgins and Green, 2008), which covers not just the protocols, their rationale, and how to implement them, but also numerous chapters on specific uses and "special topics".

[20] All information regarding size of membership is taken from the Cochrane website, where more information, and the Cochrane Library itself, can be accessed - https://www.cochrane.org/about-us

The Cochrane Handbook (Higgins and Green, 2008: 6) identifies four key characteristics for a systematic review:

- a clearly stated set of objectives with pre-defined eligibility criteria for studies;
- an explicit, reproducible methodology;
- a systematic search that attempts to identify all studies that would meet the eligibility criteria;
- an assessment of the validity of the findings of the included studies, for example through the assessment of risk of bias; and
- a systematic presentation, and synthesis, of the characteristics and findings of the included studies

A Cochrane Review requires both a protocol and a highly proscriptive standard format. The format is meant to help readers find information and assess validity quickly, whilst also facilitating publication and subsequent studies of multiple reviews. The format contains 71 separate headings or sub-headings, whilst the protocol identifies 40, as shown in table 4.1.

*Table 4.1: Sections of the protocol for a Cochrane review (Higgins and Green, 2008: 14) The twelve items marked with * are mandatory.*

Heading	**Sub-heading**
Title*	
Protocol information	Authors* Contact person* Dates What's new History
The protocol	Background* Objectives* Methods: Criteria for selecting studies for this review: Types of studies* Types of participants* Types of interventions* Types of outcome measures* Search methods for identification of studies* Data collection and analysis* Acknowledgements References: Other references: Additional references Other published versions of this review Tables and figures: Additional tables Figures
Supplementary information	Appendices Feedback:

	Title Summary Reply Contributors
About the article	Contributions of authors Declarations of interest* Sources of support: Internal sources External sources Published notes

Whilst this format of a Cochrane review is designed, as Higgins and Green (2008: 12) suggest, to be, "flexible enough to fit different types of reviews", it is quite quickly clear that this pertains almost exclusively to medical research, and primarily to the use of Randomised Control Trial (RCT) data. This format would not be so prudent in qualitative data analysis, particularly in relation to public-sector policy analysis, with its more qualitative nature. A social science specific method is therefore necessary, which can build on the key characteristics highlighted earlier.

4.4.2 Systematic reviews in the social sciences

To operationalise the key characteristics of a Cochrane Review for the social sciences, I turn to the systematic review process provided by Petticrew and Roberts (2006) in their book, 'Systematic reviews in the social sciences: a practical guide'. This seven-stage process is summarised in table 4.2.

Table 4.2: The seven stages in carrying out a systematic review (adapted from Petticrew and Roberts, 2006: 27, emphasis in original)

Stage	Description
1	Clearly define the question that the review is setting out to answer, or the hypothesis that the review will test, in consultation with anticipated users.
2	Determine the types of studies that need to be located in order to answer your question.
3	Carry out a comprehensive literature search to locate those studies.
4	Screen the results of that search (that is, sift through the retrieved studies, deciding which ones look as if they fully meet the **inclusion criteria**, and thus need more detailed examination.
5	Critically appraise the included studies, and
6	Synthesize the studies, and assess heterogeneity among the study findings.
7	Disseminate the findings of the review.

In the main, Petticrew and Robert's (2006) 'practical guide' still focusses heavily on the use of experimental data, such as the RCTs preferred by Cochrane. However, it does highlight specific approaches to dealing with more qualitative data, as well as how this can best be utilised in policy making. These approaches are summarised below, under the respective seven-stages:

1. Define the research question

Petticrew and Roberts go to great lengths to ensure that full consideration is given to whether a systematic review is needed and ensuring that a "meaningful question" is asked. They state that, "a systematic review will be of particular value when there is uncertainty about what the evidence on a particular topic shows: for example when there is uncertainty about the effectiveness of a particular intervention" (2006: 28). The difficulty of this is highlighted when trying to "fram[e] policy issues as answerable questions" (2006: 32), and they provide two examples on legislative interventions to combat obesity and mortgage safety nets, which demonstrate the "shifting context" of policy making landscapes. Pointing to the work of Mulrow (1994), they focus on the idea of "systematic reviews as hypothesis-testing mechanisms", which allows the question to be "clearly framed, then accepted or rejected" (2006: 35). They surmise that there is likely going to be difficulty when dealing with policy issues in this way, but "the basic rule is: *Never start a systematic review until a clear question (or clear questions) can be framed"* (2006: 35, emphasis in original).

2. Determine the study types for inclusion

There is still a focus on the traditional hierarchy of studies used in medical research here, which places RCTs at the top of the list due to their strong internal validity, and places case studies or qualitative data at the bottom. However, Petticrew and Roberts (2006: 60) are clear that this does not paint the whole picture and demonstrate how qualitative studies are of particular value when assessing processes of service delivery, salience, acceptability, appropriateness, and satisfaction. They go on to assert that, "without qualitative studies, we would be hard pressed to understand the social worlds of those with whom we work, and without this understanding, cannot begin to conceive of interventions that will be acceptable, let alone effective" (2006: 68).

In discussing the inclusion/exclusion criteria that one might apply, the value of deliberately broad studies was raised, with an example of a review assessing "what works" with regard to the promotion of alternatives to car driving. The authors of this review (Ogilvie et al, 2004) claimed that their rationale for a broad study was due to the lack of any prior systematic review, and this is supported by Petticrew and Roberts (2006: 75) who outline three key justifications for a broad review: generalizability, reduced bias, and reduced influence of a narrow view of studies.

3. Literature search

Described as "the most fundamental challenge for systematic reviewers" (2006: 79), the literature search should be clearly directed by the preceding research question and inclusion criteria. In social sciences, the inclusion of grey literature and book chapters is deemed necessary, as they contain much scientific enquiry that may not be published in peer reviewed journals. In detailing the search process, Petticrew and Roberts (2006: 81) are clear that this is not about retrieving everything, but it is about retrieving everything of *relevance*. They

make the distinction between *sensitivity* and *specifity*, with broad studies being more sensitive but potentially less specific, and narrow studies the opposite. This trade-off is hard to avoid, and "when searching for studies of ''difficult to define'' interventions there is little alternative" (2006: 82), leading to an often laborious, and potentially costly, sensitive search.

4. Screen results

This is primarily focussed on the identification of any methodological biases, and therefore the corresponding weight that may be placed on the results of an included study. For qualitative studies this may be shortened to the identification of specific methodological problems, and may help to identify areas for further research (2006: 127-8).

5. Critically appraise

Petticrew and Roberts (2006: 131-149) outline a series of checklists and approaches to critically assess the studies in the traditional hierarchy of studies. Returning to qualitative studies, they point to the work of McDermott and Graham (2005) on the experiences of teenage mothers, considered an important policy issue. When attempting to assess the quality of included studies they state that:

> "*Methods for critically appraising qualitative research and for synthesizing their findings are still under development, with as yet no consensus about, and therefore no accepted guidelines for, these two key stages of a systematic review. If there is any agreement, it is that a single set of methods is unlikely to be appropriate for qualitative reviews: it is the purpose and type of the review that should drive the choice of appraisal criteria and synthesis strategy*" (McDermott and Graham, 2005, quoted in Petticrew and Roberts, 2006: 150)

6. Synthesize studies

In keeping with the above statement from McDermott and Graham, Petticrew and Roberts (2006: 190) highlight the variety of qualitative methods, and thus the variety of possible synthesis methods. They discuss the increasing prevalence of qualitative work and the importance of a synthesis that builds on a narrative tradition. To accommodate this phenomenon, they suggest that the structure of systematic reviews may need to adapt, becoming longer, and possibly with a summarised version made available. Petticrew and Roberts (2006: 191) also add weight to concerns about the quantifying of qualitative methods, by asserting that, "perhaps the least useful way of dealing with qualitative data in systematic reviews is to turn it into quantitative data".

7. Disseminate findings

In order to translate systematic review findings into effective social policy, Petticrew and Roberts (2006: 247) suggest three key components: make findings available to service commissioners; ensure the research is of importance to those service users; and make considerable effort to translate

theoretical findings into practical policies. Despite the temptation to "sex up" findings in order to "get inside the house" of service commissioners, Petticrew and Roberts (2006: 248) warn strongly against this due to the often complex and nuanced messages that may emanate from such findings. Instead, they try to ground the stage of dissemination in the admission that, "systematic reviews will result in small incremental additions to knowledge rather than major findings and a judgment needs to be made on whether the time and effort of wide dissemination are justified" (ibid).

This seven-stage process of systematic review using qualitative studies demonstrates the ability of the systematic review to be applied in the social sciences, and specifically within the field of geography. There is scope for a systematic review to account for the varied data collection methods used in this discipline, whilst Petticrew and Roberts clearly highlight a pathway for incorporating such systematic review findings into the policy decision making process. However, in outlining some of the difficulties facing those trying to utilise systematic review findings in the policy making process, Petticrew and Roberts (2006: 252) are realistic about the possible outcomes:

> "*Realistically, it will probably never be the case, even with the most straightforward intervention and the clearest evidence, that the government minister, the policy people, the practitioners and the users will say: ''Hey, we'll have some of that, and we'll have it now.'' But systematic reviews provide a method that enables the steady accumulation of knowledge, and can increase the possibilities for that knowledge to be picked up and used*".

4.4.3 Limitations of systematic review

Due to the high volume of papers that are often included in systematic review searches, there needs to be a method of sifting employed to ensure only relevant papers are included. This process allows the exclusion criteria to be applied and papers chosen for inclusion in the final review. To make the task manageable due to the volume, the exclusion criteria are usually only applied to the abstract and bibliometric data. As Pittaway et al (2004: 140) point out, this means that a poorly written abstract can result in the incorrect inclusion, or more worryingly, exclusion of a paper from the review.

Despite its attempts at objectifying the subjective process of literature review, the systematic review process is still open to selection bias, with scope for reviewer(s) to select papers and to code themes that are more pertinent to them (ter Huurne et al, 2017: 495). This limitation can be reduced by increasing the number of reviewers involved and by outlining the exclusion criteria as precisely and extensively as possible, leaving as little space as possible for subjective interpretation. Any potential bias can also be flagged by the inclusion of a positionality statement of the reviewers, which, whilst not able to remove the limitation, can help to explain the selections made.

Beyond these technical limitations, systematic reviews are seen as a contribution to evidence-based policy making (Petticrew and Roberts, 2006: 11) - which also emanates from a public health approach to social policy making – and a desire for policy-makers to produce "robust strategies" of best practice (Burgman, 2015: 141). However, a critique of evidence-based policy making, and by association systematic review, is that it does not target desired, or even possible, outcomes, instead seeking only to justify decisions based on them being statistically sound. At the heart of the critique of systematic review and evidence based policy is a debate that pits:

> "rationalist supporters of increased use of information for reasoned decision-making against constructivist critics who argue that policy-making is not based on evidence and that an appeal to evidence is the first step toward a dangerous elimination of human judgment in the policy process" (Newman, 2017: 211)

But as Newman goes on to assert, when the arguments of each side are laid out, they can be found to be "intellectually compatible" (ibid.), being, as they are, both concerned with the better use of information in policy making. In reframing this not as a debate but as a "reconciliation of…different perspectives" (Newman, 2017: 223), it can, "lead to an improved understanding of the kind of impact research evidence can realistically have on public policy" (ibid.) and help improve the process of determining which interventions to use when, or indeed, when not to use them at all.

It is therefore not the intention of this paper to suggest that systematic reviews should replace traditional literature reviews, nor to assert that the results of systematic reviews are infallible and represent an objective truth. Instead, this paper supports this contention of Newman (2017) that systematic reviews have a rightful place amongst other research synthesis tools in identifying practical steps to take to deliver the best outcomes for the problem under review. To further support this contention, a specific case study is outlined, in which the process of systematic review was trained on the emerging literature on the sharing economy.

4.5 A Systematic Review of the Sharing Economy

In order to outline the practical steps of undertaking a systematic review in geography, I will use my own experience of conducting a systematic review of the literature on the sharing economy (Northall, 2017 – Chapter 5 in this thesis), following the guidance of Petticrew and Roberts (2006) outlined above. This is a particularly salient example of how systematic reviews can be applied to the task of policy analysis, coming as it does from an emergent socio-technical phenomenon, one which demonstrates the difficult characteristics of a "chaotic concept" (Sayer, 1992) – a theory explored in more detail in the following section on knowledge production. Focussing at the city level it can be seen how the motivations of the many local actors create "contradictory framings" (Martin, 2016) regarding the

efficacy of the sharing economy. The weight of these framings, both positive and negative, are exacerbated by "availability entrepreneurs" (Netter, 2016) who operate based on their own self-interest to ensure that a particular policy is either empowered or resisted. This makes the role of the city decision maker increasingly complex, and, has been shown elsewhere (Peck, 2012; Gray and Barford, 2018; Northall, 2019 – Chapter 6 in this thesis), these kinds of complex policy decisions are repeatedly falling on a resource-poor, and time-stretched local public-sector, with little room to consider long-term preventative approaches, and with even less room for failure.

The systematic review of the sharing economy that was undertaken, sat within wider research on the economic sustainability of cities[21], and was intended to provide greater analytical nuance to city policymakers. A systematic review was chosen specifically because it enabled the knowledge on the sharing economy to be strengthened. This was pertinent given the emergent and trans-disciplinary nature of the sharing economy literature. It was also of importance due to the contradictory positive and negative values that were being assigned to the potential of the sharing economy, with city decision-makers unable to discern clearly whether the sharing economy could be of benefit or harm to their cities[22].

The existing contradictions and difficulties in identifying the operational extents of the sharing economy emerged during an initial literature review of the sharing economy. This formed the basis of the scoping study prior to the first-stage of the Petticrew and Roberts (2006) method of systematic reviews, and helped to shape the initial research question. A summary of each of the seven-stages is provided in table 4.3.

Table 4.3: The seven-stage process of systematically reviewing the sharing economy, adapted from Petticrew and Roberts (2006)

Stage	**Description**
1. Research Question	What does the academic literature identify as the most common critical success factors in the sharing economy?
2. Inclusion Criteria	Peer-reviewed academic papers in English only
3. Literature Search	Search of Scopus and Web of Science databases in November 2016, and using the search term 'sharing economy', resulted in 339 articles.
4. Screening	Application of the inclusion criteria reduced this number down to 91 papers for full review
5. Appraisal	This review explores how the term 'sharing economy' is described in academic literature, regardless of any potential bias or explicit motivation. Therefore, appraisal of study quality and bias was not relevant, nor undertaken beyond the inclusion criteria.

[21] The systematic review was the first stage of PhD research that formed part of the 'economic theme' of the 'Sustaining urban habitats: an interdisciplinary approach' project, delivered by the Laboratory of Urban Complexity & Sustainability (LUCAS) at the University of Nottingham.
[22] For the full analysis, see Northall (2017).

6. Synthesis	Coding of factors was undertaken using Nvivo software, and identified 169 factors, 105 of which appeared in three or more papers. These 105 factors were then mapped using a thematic mapping process (Braun and Clarke, 2006), and the interaction of the factors appearing in over 25% of papers was analysed. A more detailed outline of this stage is covered below.
7. Dissemination	Results of critical success factor analysis are to be disseminated through an academic paper, and incorporated into best practice guidance to local authorities in the UK.

4.5.1 Research Question

Following an initial scoping study, the clear contradictory framings emerged, with highly positive and negative outcomes ascribed to the sharing economy. It was clear that for any meaningful policy assessment to be made at the city level, then the critical factors had to be more clearly highlighted, and the knowledge on this topic strengthened. With this being a new area of enquiry, the decision was made to undertake as 'sensitive', or broad, a review as possible, whilst still framing the research around an answerable question. As a result the question asked was, 'What does the academic literature identify as the most common critical success factors in the sharing economy?'.

4.5.2 Inclusion Criteria, Search Strategy

The intention of this review, therefore, was to analyse the existing state of the art, quantifying the areas of consensus and synthesising the key factors in order to provide greater analytical nuance for policymakers. As a relatively new area of research (there were no scholarly references of a sharing economy prior to 2011, and a similar temporal pattern was found in google searches), it did not seem prudent to limit the scope of this review to only highly ranked journals, and so no quality assessment was made on what to include (other than the fact that they must be listed on Scopus or Web of Science). Similarly, given the multi-disciplinary nature of the topic - spanning as it does the worlds of technology and innovation, business and economics, sociology, geography, government, and law, amongst others - it would not have been appropriate to focus on the journals in only one discipline, as this would only capture a narrow view of the key factors of the sharing economy.

This lack of restriction on the literature to be included ran the risk of creating an insurmountable level of literature to analyse, making the task of synthesising a qualitative knowledge consensus nearly impossible. The initial search rendered 336 papers for consideration. Three simple inclusion criteria were applied to make this into a more manageable undertaking, whilst maintaining the integrity and robustness of the framework. Firstly, the work must be peer reviewed and published i.e. no conference papers or editorials. Secondly, it must contain the term "sharing economy" in the title, abstract, or topic, therefore related terms and academic antecedents, such as collaborative consumption, are not the focus. And thirdly, the work must be in English. This latter restriction was not made for value purposes but was a technical restriction highlighting the limitations of the researcher, and resulted in the exclusion of only a small number of papers.

However, this does highlight the anglicised bias inherent within this research as a consequence of the researcher's background.

4.5.3 Screening & Appraisal

Application of these criteria reduced the number of papers for review down to 91. Further appraisal of the internal validity of these papers was not deemed to be of relevance due to the qualitative nature of the studies. In terms of explicit biases, it would have been difficult to assess this robustly from the papers themselves, and since this was an attempt to understand the state of the art, and to weigh the many, conscious or unconscious, biases against each other, it was decided that all studies that had been screened, should be included for synthesis.

4.5.4 Synthesis using thematic mapping

The data synthesis stage of the review involved the process of thematic mapping described by Braun and Clarke (2006). Despite wide use of this process prior to this paper, Braun and Clarke's (2006: 77) work identified, "the absence of a paper which adequately outlines the theory, application and evaluation of thematic analysis". In response, they outline a six-stage process for successful thematic analysis (2006: 87), which has subsequently become the most widely cited paper on thematic analysis. The stages of this process, adapted for this systematic review, are presented in table 4.4.

Table 4.4: The six-stage process of thematic analysis as utilised in the systematic review of the sharing economy. Adapted from Braun and Clarke (2006: 87)

Stage	**Description**
1. Familiarisation	An initial scoping study was undertaken as part of wider research into urban economic sustainability. This was followed by the systematic review of the sharing economy outlined above.
2. Initial Coding	Undertaken prior to, and refined during, the systematic review, these codes identified a feature of the data and referred to "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998: 63). These codes constituted the critical factors of the sharing economy.
3. Search for Themes	This iterative process identified factors in the literature and then employed various visualisation methods such as tabulation and mind-mapping to group them. The most effective approach, recommended by Braun and Clarke (2006: 89), involved writing out each factor on a card and moving them around to see how they best interacted with each other, and where they began to form relevant groups. The fluidness of this approach allowed for multiple iterations of this process to take place before a final grouping was settled upon and simplified.
4. Review Themes	
5. Defining & Naming	Well established groupings from stage four facilitated the definition and naming of those themes, which was influenced by the conceptual framework.
6. Reporting	Prior to completion of this report, a narrative analysis was undertaken. This additional qualitative study focussed on the

	factors appearing in at least 25% of the review papers and helped to better outline the interactions between the defined themes. These 19 factors accounted for a significant proportion (71%) of the variability when the frequency of all factors was plotted, and represented a clear inflection point on the chart.

4.5.5 Results & Dissemination

The thematic analysis highlighted the factors of scalability and access to under-utilised resources as the most unique to the sharing economy, whilst a meta-analysis identified nineteen prominent factors appearing in at least 25% of the papers reviewed. These were: Information & Communications Technology (ICT); Platforms; Peer-to-Peer (P2P); Consumption; Trust & Reputation; Access; Community; Idle Capacity; Social Relations; Disruptive Innovation; Technology; Labour; Intermediation; Reducing Transaction Costs; Capitalism; Communications; Asymmetry of Information; Social Media; and Prosumption.

Following this analysis, an inferred definition of the sharing economy was suggested:

> "*The sharing economy is a system that evolves existing social dynamics related to community building, trust, and collaboration. It extends the power and scale of these practices using internet enabled, peer-to-peer platforms, developing monopolising intermediaries that enable widespread access to under-utilised resources. It has the, as yet unproven, potential to deliver positive environmental and social impacts, but is most readily associated with reducing transaction costs. Negative impacts relate to the increasing precariousness of employment, the rebound effect on consumption habits, and the extension of markets into previously personal spaces*"
> (Northall, 2017: 17 – Chapter 5 in this thesis, p. ??)

By outlining the steps taken in this broad systematic review of an emerging concept, and by demonstrating one of the many possible methods of qualitative data synthesis, I have shown the adaptability of the process of systematic review. The results provide a distilled breakdown of the main determinants within this particular concept, making this a particularly salient policy analysis tool. To underline this contention, I will demonstrate how qualitative systematic reviews can contribute to the changing nature of knowledge production, and help to bring analytical precision to a difficult behavioural environment.

4.6 The Changing Nature of Knowledge Production

It is the contention of this paper that qualitative systematic reviews, if undertaken using the seven stage process outlined, can help 'policy entrepreneurs' (Kingdon, 1984) navigate a difficult 'behavioural environment' (Kirk, 1963) involving numerous 'chaotic conceptions' (Sayer, 1992) and potential biases. By doing so, it is hoped that more effective policy choices can be made with fewer resources,

resulting in greater potential to increase benefits from opportunities presented, and to minimise, or avoid, any potential losses.

Starting with the idea of a 'chaotic conception', Sayer (1992) bases his work on Marx (1858) and his disdain for an "abstract determination", or the presupposition of the many determinants that make up a particular concept:

> "*The population is an abstraction if I leave out, for example, the classes of which it is composed. These classes in turn are an empty phrase if I am not familiar with the elements on which they rest. E.g. wage labour, capital, etc. These latter in turn presuppose exchange, division of labour, prices, etc. For example, capital is nothing without wage labour, without value, money, price etc. Thus, if I were to begin with the population,* ***this would be a chaotic conception*** *[Vorstellung] of the whole, and I would then, by means of further determination, move analytically towards ever more simple concepts [Begriff], from the imagined concrete towards ever thinner abstractions until I had arrived at the simplest determinations*" (Marx, 1858: 33, emphasis added).

Instead of 'chaotic conceptions', Sayer (1992: 138) advocates for 'rational abstractions', that is, an abstraction, "which isolates a significant element of the world which has some unity and autonomous force, such as a structure", contrasting this to, "a bad abstraction [that] arbitrarily divides the indivisible and/or lumps together the unrelated and the inessential, thereby 'carving up' the object of study with little or no regard for its structure and form". Sayer is contrite in suggesting that this approach seems to be fairly obvious, but despite the simplicity, he suggests that, "you don't have to look far in social science to find substantial bodies of literature based on chaotic conceptions" (1992: 139). In systematising the process of review then, it should be possible to break up the many chaotic conceptions into their rational abstractions, resulting in more successful policy interventions.

As we have seen earlier, a central benefit of systematic reviews are their objectivity and transparency (Jesson et al, 2011). This bias reducing process can help to address the behavioural environment Kirk's (1963) in which policy making occurs. Kirk (1963) demonstrated how a decision maker is rarely at the centre of a solely empirical or phenomenal environment, instead there is "a psycho-physical field in which phenomenal facts are arranged into patterns of structures (*Gestalten*) and acquire values in cultural contexts" (Kirk, 1963: 366, emphasis in original). Arguably, nowhere are phenomenal facts able to acquire more cultural context than within the politically charged sphere of policy making. This is underlined by Kingdon (1984), who focuses on the 'multiple streams approach' needed to understand and enact policy change. The multiple streams are: the problem (concept); the politics (support); and the policy (solution), which together form a 'policy window', in which 'policy entrepreneurs' can operate to ensure that a particular policy solution is implemented. In critiquing Kingdon, Cairney (2013) points to the fact that, "problems get attention based on how they are 'framed' or defined by participants

who compete for attention – using evidence to address uncertainty and persuasion to address ambiguity".

A systematic literature review can therefore help to uncover the "structure and form" of a previously chaotic concept, thereby taking power away from the 'persuasive participants' by providing the evidence to address the uncertainty. By providing "incremental additions to knowledge" (Petticrew and Roberts, 2006: 248), systematic reviews create a strong foundation on which to open up policy windows and find appropriate policy solutions. These solutions can even be co-created with users, as Petticrew and Roberts (2006: 27) recommend that defining the research question in the first stage is undertaken "in consultation with anticipated users". In increasingly time- and resource-poor local policy-making administrations (Peck, 2012; Gray and Barford, 2018; Northall, 2019 – Chapter 6 in this thesis), the systematic review could help to increase the value of potential opportunities, and limit the negative impact of any threats. However, their implementation may require more investment at the start in order to maximise benefits and minimise losses further upstream, and it seems that this preventative mind-set is becoming increasingly scarce in many public-sector settings.

4.7 Conclusion

It was the intention of this paper to demonstrate the potential for systematic reviews to increase analytical precision in policy making, and to provide a simple guide to their implementation. In doing so, it was not the intention to advocate for more quantitative methods in the social sciences, nor was it intended to minimise the value of qualitative data. The aim was squarely focussed on addressing the messiness and bias of the policy-making environment, and to attempt to find a way to effectively analyse an ever-increasing number of qualitative sources with objective quantitative methods.

By utilising a 'sensitive', or broad, literature search that frames policy issues as answerable questions and incorporates an appropriate qualitative method of synthesis, systematic reviews can become a valuable tool in the policy-maker's arsenal. Broad reviews of emerging chaotic concepts, of which the local urban environment is awash, can help to overcome contradictory framings that are developed by partisan local actors seeking to exploit or inhibit policy change based on their own self-interest.

5
CATEGORIES AND CLASSIFICATIONS IN THE 'SHARING ECONOMY': A SYSTEMATIC REVIEW

5 CATEGORIES AND CLASSIFICATIONS IN THE 'SHARING ECONOMY': A SYSTEMATIC REVIEW

Phil Northall, School of Geography, University of Nottingham

5.1 Abstract

The 'sharing economy' has rapidly become a widespread business and organisational model, advocated widely across a range of academic disciplines, and is notably considered as a potential pathway to sustainability. However, the literature still lacks consensus on what constitutes a 'sharing economy' with anything from on-demand digital services to local skills exchanges being considered part of it. This has led to piecemeal approaches from policymakers, both for and against, with considerable positive and negative impacts on the line. To address this, this paper presents the results of a systematic review of 91 peer-reviewed papers on the 'sharing economy', focussing on the most prevalent factors and combining these for greater analytical clarity. The review finds that the majority of factors identified are congruent with many modern economies, driven as they are by ICT and communities of trust. It contends that the most unique aspect is an access to under-utilised resources, and that for this economy to be of value to local decision-makers pursuing more sustainable outcomes, it should be analysed in terms of access platforms.

5.2 Introduction

In just a few short years the 'sharing economy' has become a term used widely across government (Wosskow, 2014), industry (Kapoor, 2014), the media (Morozov, 2013), and academia[23]. In industry, it is most readily associated with hi-tech and innovative start-ups and a subsequent 'disruption'[24] to a range of sectors, notably transportation (Megaw, 2016) and tourism (Zervas et al, 2017). This 'disruption' has led to piecemeal and reactionary government policy responses (DCLG, 2014; TfL, 2016), that are most often played out in cities - who themselves are trying to both understand how to harness the opportunities (PwC, 2014), and to limit the possible negative externalities (van der Zee, 2016) of this 'sharing economy'.

As this paper will show, academic research on the 'sharing economy' emanates from a very broad range of disciplines, from ICT, communications, and business, to sociology, environmental science, and geography. This broad range of disciplinary interpretations has led to a widening of this umbrella term to encompass different applications and understandings. This has seen the 'sharing economy' follow a

[23] As this research will show, the term 'sharing economy' has become increasingly apparent in academic literature since 2013.

[24] 'Disruption' is a widely used description of the impact of the 'sharing economy' on 'traditional' or 'incumbent' industries, but this form of 'disruption' is argued to be distinct from the agreed definition of 'disruptive innovation', as proffered by Bowyer & Christensen, 1995, and discussed later in this paper.

similar trajectory to other “contested concepts” like ‘sustainable development’ (Soderbaum, 2008: 1), where the definitions and boundaries are manipulated and kept “sufficiently vague” (Daly, 1996: 2) to suit the activities of a range of actors and institutions (Goodland and Daly, 1996: 1002). The academic literature has already expressed concern about the “contradictory framings” (Martin, 2016: 149), "semantic confusion" (Belk, 2014b: 9) or “political malleability” (Morgan and Kuch, 2015: 563) of the “floating signifier” (Richardson, 2015: 122) that is the term ‘sharing economy’.

This term is also used interchangeably, often without clarification or differentiation, with a myriad of other terms such as ‘gig economy’ (Hathaway and Muro, 2016), ‘access-based consumption’ (Bardi and Eckhardt, 2012), ‘the mesh’ (Gansky, 2010), ‘post-ownership economy’ (Belk, 2014a), ‘platform economy’ (Choudary, 2015), and most commonly with its antecedent, ‘collaborative consumption’ (Botsman and Rogers, 2010). These terms have distinct definitions and boundaries themselves, often related to the discipline or background that they emanate from. Therefore, the conflation with, or classification under the umbrella of the ‘sharing economy’ has led to concerns about the widening of this phenomena away from core principles - related to the optimised use of under-utilised assets - (Botsman, 2016), while others outline how this “lack of consensus” (Richardson, 2015: 123) can create challenges in developing coherent policy approaches.

Addressing this challenge, this research uses a systematic review methodology (Petticrew and Roberts, 2006) to analyse the use of the term ‘sharing economy’ across the academic literature – covering 91 peer-reviewed papers that cite the term ‘sharing economy’. The aim is to identify the most common factors, and to rigorously assess what is driving the ‘sharing economy’. This review will contribute a rigorous and independent analysis of the state of the academic understanding on the ‘sharing economy’, enabling a more effective public-sector approach, which is better aligned to, and equipped for, these industrial advances. The objective is not to add to the critical debates about the nature of sharing in the ‘sharing economy’ (Banning, 2016; John, 2013a; 2013b; Kennedy, 2016; Bucher et al, 2016) but to underline the boundaries of consensus on what the ‘sharing economy’ is perceived to be, and to better inform those contemplating the ‘sharing economy’ as an approach. In particular, much of the literature on the ‘sharing economy’ espouses claims for improving the sustainability of cities (Heinrichs, 2013; Light and Miskelly, 2015; Hamari et al, 2015: 2051; Lamberton, 2016; Cohen and Munoz, 2016), but without greater analytical nuance, policymakers are struggling to interpret and strategise for this phenomenon (Finck and Ranchordás, 2017; Cooper and Timmer, 2015; Hirshon et al, 2014).

Since this is a systematic review of a specific phenomenon, and the results of this review are an extension of the traditional literature review process, this paper will proceed straight to an outline of the methodology employed, building upon the justification for the systematic review outlined above. This will be followed by the quantitative results of the review, along with the qualitative analysis and discussion of the most cited factors and themes identified in the ‘sharing economy’. This will

shape the boundaries of the 'sharing economy' as understood in the nascent literature, leading to the postulation of a definition of the term.

5.3 Methodology

Tranfield et al (2003: 220) make the case for undertaking systematic reviews in order to "develop a reliable knowledge base by accumulating knowledge from a range of studies". The authors also cite Pettigrew's (1997) argument for more thematic approaches in developing evidence-informed management knowledge, recognising the social production of knowledge in policy and practice. Following this approach, the method employed here is a seven-stage systematic review process, outlined below. The data synthesis stage of this process will be undertaken by a thematic mapping analysis, also detailed below. This fits eloquently with the nature of the data under review, and its intended use to enhance public policy development, particularly as it requires "making sense of a mass of often-contradictory evidence" (Tranfield et al, 2003: 207). This approach is supported by Thomas and Harden (2008: 1) who conclude that thematic synthesis in systematic reviews are a "tried and tested method that preserves an explicit and transparent link between conclusions and the text of primary studies".

5.3.1 Systematic Literature Review

The systematic literature review follows the principles and protocol outlined by Petticrew and Roberts (2006). This is an inductive approach to understanding the key factors of the sharing economy, as it is viewed by the existing academic literature. There are numerous approaches to systematic reviews available, but the majority of these relate to research in the medical and health sciences (Higgins and Green, 2008; Bero et al, 1998; Jüni et al, 2001). A number also exist in the field of business and innovation (Durugbo, 2016; Pittaway et al, 2004; Morioka and Carvalho, 2016; Tranfield et al, 2003; Rashman et al, 2009), but the Petticrew and Roberts (2006) approach was chosen because it is not just widely cited, but also deals specifically with systematic reviews in the social sciences, and provides a very detailed breakdown of the approach. This enabled a more robust, and repeatable, method to be followed.

For a systematic review to be successful it is "essential" to write a clear protocol (Petticrew and Roberts, 2006: 285). The protocol follows a seven-stage process outlined by Petticrew and Roberts (2006: 27) and described in table 5.1.

Table 5.1: The seven-stage process of a systematic literature review

Stage	Description
1. Research Question	What does the academic literature identify as the most common critical success factors in the sharing economy?
2. Inclusion Criteria	Peer-reviewed academic papers in English only

3. Search Strategy	Search of Scopus and Web of Science databases in November 2016, and using the search term 'sharing economy', resulted in 339 articles.
4. Screening	Application of the inclusion criteria reduced this number down to 91 papers for full review (appendix 4 provides the full referenced list of these papers).
5. Appraisal	This review explores how the term 'sharing economy' is described in academic literature, regardless of any potential author bias. Therefore, appraisal of study quality and bias was not relevant, nor undertaken beyond the inclusion criteria.
6. Synthesis	Coding of factors using Nvivo software identified 169 factors, 105 of which appeared in three or more papers. These 105 factors were then mapped using a thematic mapping process (Braun and Clarke, 2006), and the interaction of the factors appearing in over 25% of papers was analysed. A more detailed outline of this is covered below.
7. Dissemination	Results of critical success factor analysis are to be disseminated through an academic paper, and incorporated into best practice guidance to local authorities in the UK.

5.3.2 Thematic Mapping Process

The data synthesis stage of the review involved the process of thematic mapping described by Braun and Clarke (2006). This is the most cited paper for this type of enquiry, and is regularly used to define the benefits of thematic analysis against similar approaches, such as content analysis (Vaismoradi et al, 2013) or meta-synthesis (Thomas and Harden, 2008). Despite wide use of this process, Braun and Clarke's work identified "the absence of a paper which adequately outlines the theory, application and evaluation of thematic analysis" (2006: 77), and in response, provide a six-stage process for successful thematic analysis (2006: 87), and detailed in table 5.2.

Table 5.2: The six-stage process of thematic analysis (Braun and Clarke, 2006: 87)

Stage	**Description**
1. Familiarisation	An initial scoping study was undertaken as part of wider research into urban economic sustainability. This was followed by the systematic review of the sharing economy outlined above.
2. Initial Coding	Undertaken prior to, and refined during, the systematic review, these codes identified a feature of the data and referred to "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998: 63). These codes constituted the critical factors of the sharing economy.
3. Search for Themes	This iterative process identified factors in the literature and then employed various visualisation methods such as tabulation and mind-mapping to group them. The most effective approach, recommended by Braun and Clarke (2006: 89), involved writing out each factor on a card and moving them around to see how they best interacted with each other, and where they began to form relevant groups. The fluidness of this approach allowed for multiple
4. Review Themes	

	iterations of this process to take place before a final grouping was settled upon and simplified, as shown in figure 5.3.
5. Defining & Naming	Well established groupings from stage four facilitated the definition and naming of those themes, which was influenced by the conceptual framework.
6. Reporting	Prior to completion of this report, a more narrative analysis was undertaken. This additional qualitative study focussed on the factors appearing in at least 25% of the review papers and helped to better outline the interactions between the defined themes. These 19 factors accounted for a significant proportion (71%) of the variability when the frequency of all factors was plotted (see figure 5.1), and represented a clear inflection point on the chart. They were therefore chosen for more detailed analysis, which is outlined in the discussion.

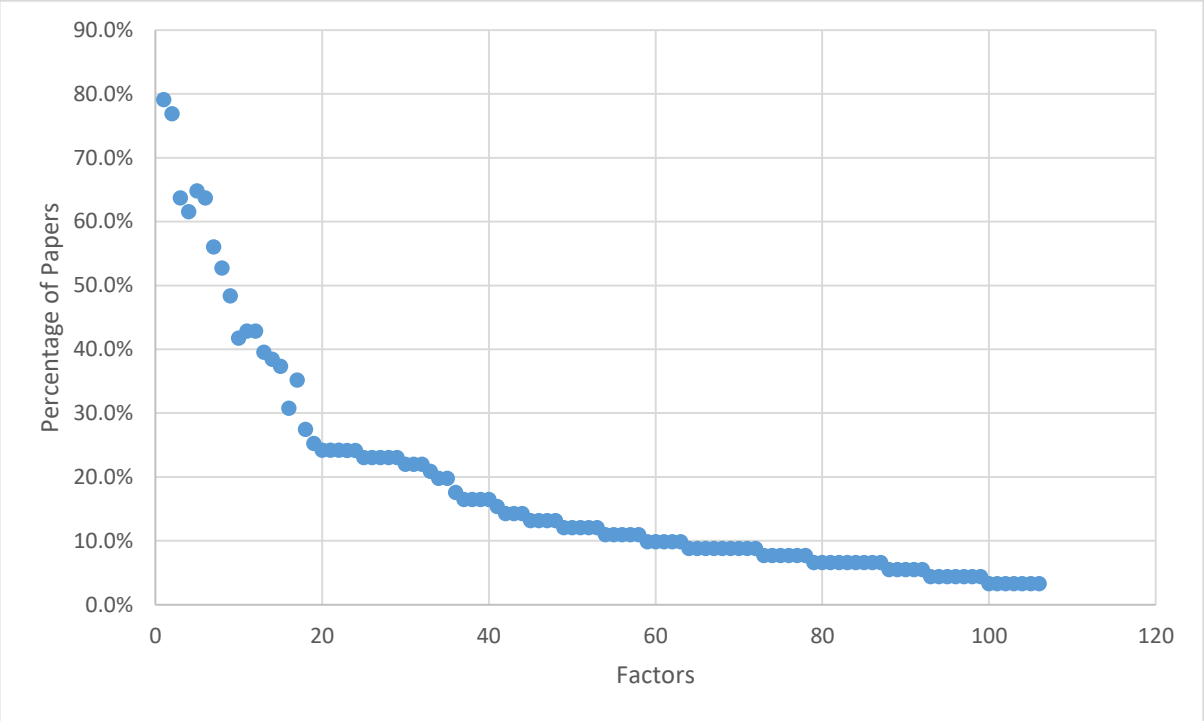


Figure 5.1: Frequency of factors, by percentage of papers they are included in

5.4 Results

The 91 papers reviewed (see appendix 4) spanned a broad range of disciplines, as shown in table 5.3, but were primarily from journals related to Business, Management & Economics; Geography; Environmental Science & Management; and ICT & Computer Science.

Table 5.3: Breakdown of systematic review papers, by discipline (according to the subject areas of the journals, as they are listed on Scopus or Web of Science)

Journal Discipline	No. of Papers
Business, Management & Economics	21
Geography	11
Environmental Science & Management	10
ICT & Computer Science	10
Communications	8
Sociology	6
Tourism	6
Education	3
Law	3
Transportation	3
Innovation	2
Political Science	2
Arts	1
Multidisciplinary	1
Psychology	1
Agriculture	1
Energy	1
Engineering	1

Due to the restriction of the search term to 'sharing economy', the papers reviewed only went back as far as 2013, with the majority (60%) being published in 2016. A full breakdown of publication years is shown in table 5.4, and the emergence of the term 'sharing economy' is also mirrored on Google, as shown in figure 5.2.

Table 5.4: Breakdown of review papers, by year of publication

Year of Publication	No. of Papers
2013	3
2014	6
2015	24
2016	55
2017[25]	3

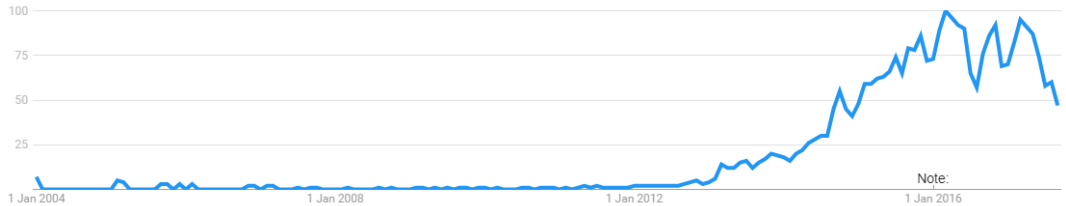


Figure 5.2: Use of search term 'sharing economy' worldwide over time. Source: Google Trends.

As discussed in the introduction, many alternative terms have been used in conjunction with, or interchangeably for, the sharing economy, in order to describe this system of exchange or mode of consumption. The systematic review identified

[25] The search for papers was conducted on 19th November 2016. However, results included some early access papers, which were subsequently published in full in 2017.

60 different terms, with table 5.5 showing those that appeared in four or more papers. A considerable majority of papers (55%) referenced the well-established antecedent of the sharing economy, collaborative consumption.

Table 5.5: List of most prevalent alternatives terms used for, or in conjunction with, 'sharing economy'

Alternative Term Used	**No. of Papers**
Collaborative Consumption	50
Access Economy	12
P2P Economy	10
Anti-Consumption	9
The Mesh	9
Alternative Economy	8
Sharing Systems	7
Gift Economy	6
Collaborative Commons	6
Conscientious Consumption	5
Gig Economy	5
Social and Solidarity Economy (SSE)	4
On Demand Economy	4
Service Systems	4
Shared Economy	4

The thematic mapping process led to the creation of figure 5.3. The common themes that were identified here reflected the fact that this is part of wider research into urban economic sustainability, and betray the reflexivity and conceptual framework of this researcher. As such the outcome of the process demonstrates a familiar socio-technical-economic system, with a considerable sub-theme of business models. Smaller sub-themes emerged around sustainability, urban issues, and governance.

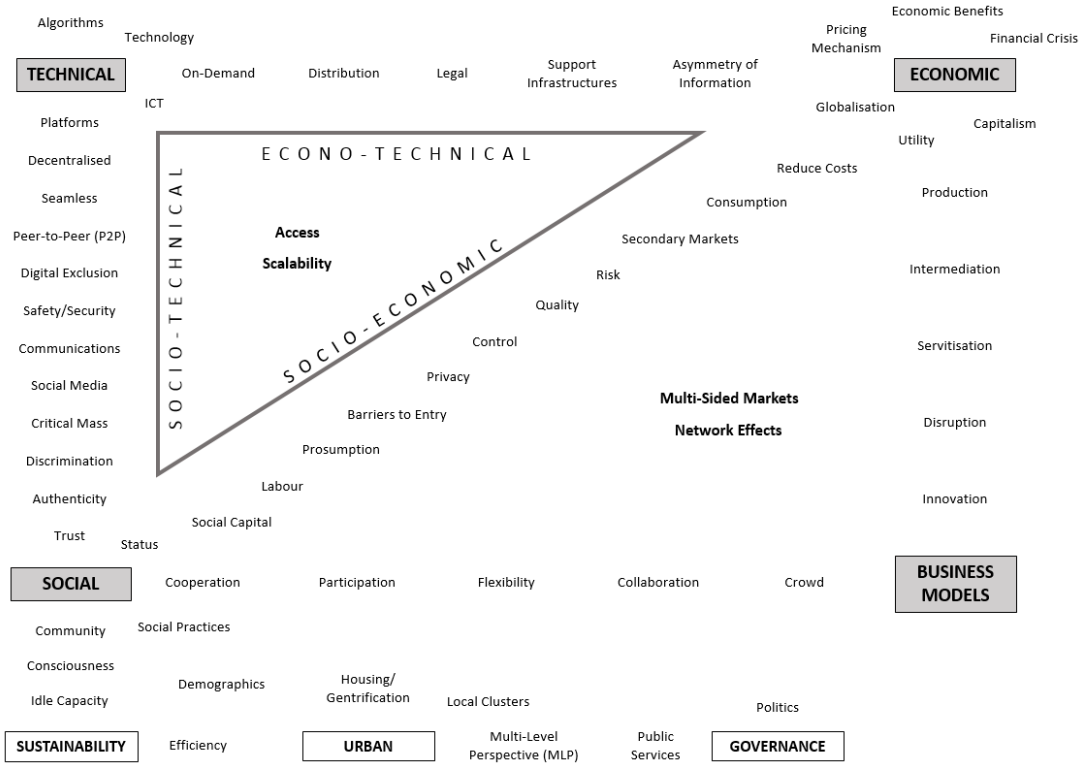


Figure 5.3: Simplified thematic mapping of most common factors in the sharing economy literature

Using this system, the factors could be placed under the corresponding thematic headings with many overlapping with their neighbouring themes, and creating a continuous system. There were four factors that stood out due to the difficulty in assigning them to one or two themes, and these were, 'access' and 'scalability', and ‘multi-sided markets’ and ‘network effects’. It can be argued that these factors are universal to all the themes identified, and that ‘scalable access’ to resources is the unique aspect of the sharing economy.

Table 5.6: Factors for narrative analysis by frequency and related factors

Factor	**%age of Papers**	**Related Terms**
Information & Communications Technology (ICT)	79.1%	data, compatibility, scalability, algorithms, ubiquity
Platforms	76.9%	decentralised, standardised, circuits of capital, network effects, multi-sided markets, decentralising, seamless
Peer-to-Peer (P2P)	64.8%	peers, decentralised, open source, peer-production
Consumption	63.7%	globalisation, financial crisis, reducing transaction costs, capitalism, prosumption, utility, secondary markets
Trust & Reputation	63.7%	identity, anonymity, discrimination, social media, risk, moral hazard, performativity, social practice, cooperation, incentives, control, free-riders
Access	61.5%	consciousness, servitisation, idle capacity, product service systems, ICT, reduced transaction costs, community, crowd

Community	56.0%	trust, social practices, connectivity, network effects, critical mass, crowd, affect
Idle Capacity	52.7%	optimisation, under-utilised assets, sweating assets, excess capacity, product-service systems, slack, tolerated scrounging
Social Relations	48.4%	social capital, connected consumption, social practices, performitivity, free riding, incentives, penalties, moral economy, cultural norms
Disruptive Innovation	42.9%	technology, new start, incumbent, regulation, evasive entrepreneurship, institutional inconsistencies, seamless
Technology	42.9%	infrastructure, technologically situated sharing, smartphones, innovation, industrial ecology, product design
Labour	41.8%	prosumption, crowdsourcing, race to the bottom, flexibility, reduced entry barriers, precariat, entrepreneurship (micro and evasive), institutional inconsistencies
Intermediation	39.6%	monopoly, distributed, decentralised, peer-to-peer, network effects, scalability, moral hazard, insurance, asymmetry of information, participation, multi-sided markets
Reducing Transaction Costs	38.5%	motivations, utility, participation, value-action gap, circuits of capital
Capitalism	37.4%	circuits of capital, capital accumulation, labour, globalisation, financial crisis, consumption, hyper-consumption
Communications	35.2%	community, trust, social media, social networks, social capital, crowd, prosumption, brand, marketing, share washing,
Asymmetry of Information	30.8%	intermediation, trust, identity, reducing transaction costs, distributed, matching
Social Media	27.5%	communications, social networking technologies, digital infrastructure, audience, scale, trust, community
Prosumption	25.3%	production, consumption, social commerce, Mcdonaldisation, co-production

The next stage was to focus on a narrative analysis of the most cited factors, which left nineteen factors that occurred in at least 25% of papers reviewed, listed in table 5.6. Exploring the nature of the discussion on these most prevalent factors, a clearer picture can be provided of how the sharing economy is understood to operate, and how the critical factors interact. As would be expected with this kind of approach, a similar pattern to the thematic mapping also appeared.

Core themes were again identified, these being, enabling technologies; social dynamics; business models, and impacts (see figure 5.4). The factors could be seen on a continuous spectrum with overlapping elements, but, this time, a more developmental progression could be inferred, which would aid with definition later.

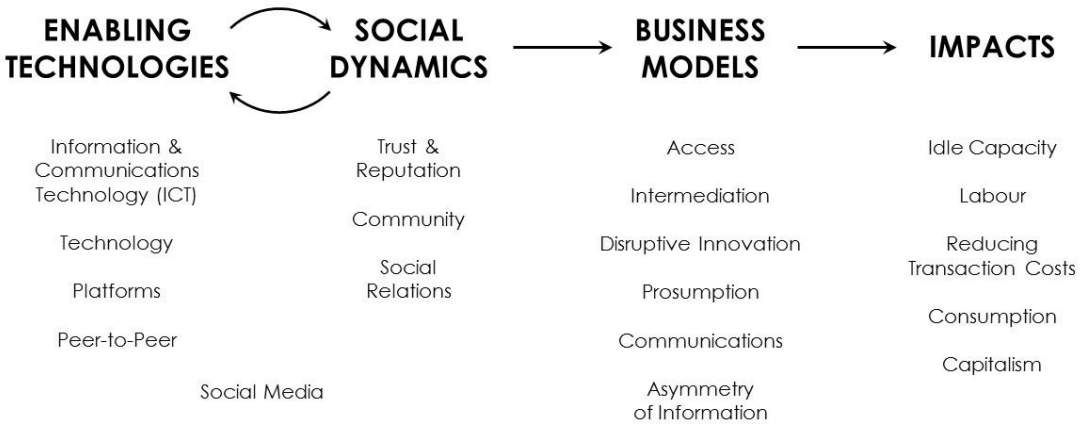


Figure 5.4: Most frequent factors, organised by theme

To better understand the justification for these themes, it is necessary to outline a narrative analysis of these most cited factors, and discuss their interactions:

5.4.1 Enabling technologies:

Information and Communications Technology (ICT) and technology
The use of ICT is neither new, nor unique to the sharing economy, but its requirement and potential role is clearly, often hyperbolically, stated. It is the most widely cited factor in the literature (79% of papers), and is considered to have changed, “the way that we communicate” (Bandyopadhyay et al, 2016: 285); “the landscape” (Tussyadiah and Pesonen, 2015: 3); and the “paradigm” (Puschmann and Alt, 2016: 93). In the sharing economy, "the rise of the internet plays a key role" (Möhlmann, 2015: 194), with growth in sharing systems “fuelled” by ICT (Matzler et al, 2015: 72; Roh, 2016: 503). Whilst this form of sharing “relies” on (Kennedy, 2016: 466; Elert and Henrekson, 2016: 100); or is "rooted in the internet and mobile technologies" (Lougher and Kalmanowicz, 2015: 1).

As an enabling technology, the “ubiquity” of ICT (Cohen and Kietzmann, 2014: 279) is what allows “unprecedented” or “massive” scalability of sharing to be achieved (Martin et al, 2015: 243; Kennedy, 2016: 467). Barnes and Mattsson's (2016: 204) delphi study on the drivers of ‘collaborative consumption’, also support the significance of the role of ICT. Their survey of 25 experts found that "top of the list are 'Technological Enablers' (1st), underpinned by the Internet, mobile phones and smart technology" (ibid).

Technology, as distinct from ICT, refers to the physical infrastructures that facilitate sharing, what is referred to as technologically -situated (Kennedy, 2016: 462) -enabled (Killeen, 2015: 490) and -mediated (Lamberton, 2016: 695) sharing. Again, Barnes and Mattson’s (2016: 208) delphi study asks what are the "most [important] developments to collaborative consumption over the next 10 years", and ranks technological developments fourth. When considering more sustainable outcomes, technology can refer to issues of "product design, more efficient manufacturing and the recapturing of value from ‘used’ materials" (Hobson and Lynch, 2016: 16).

Platforms

Table 5.7 demonstrates the many ways in which platforms are conceived in the sharing economy literature, but across these varying descriptions the emphasis is on how platforms facilitate markets and/or exchange between decentralised peers.

Table 5.7: Conception of platforms in the sharing economy literature

Platform Description	**References**
Technical or technological foundation	Lampinen et al, 2015; Luckner et al, 2015; Martin et al, 2015
Promotional	Matzler et al, 2015
Intermediating	Lougher and Kalmanowicz, 2015
Community Building	Fremstad, 2016
Type of organisation, business or firm	Pisano et al, 2015; Henten and Windekilde, 2016

In this respect, the sharing economy literature bears out Srnicek's (2016) understanding of a platform as a digital infrastructure, and intermediary between users, with an ability to create its own (multi-sided) marketplace. It also confirms Lougher and Kalmanowicz's (2015: 10) assertion that the sharing economy can be considered to operate in a "distinct platform intermediation market". Even the UK government's independent review into the sharing economy defines the sharing economy in relation to platforms; "I am defining the sharing economy as online platforms that help people share access to assets, resources, time and skills" (Wosskow, 2014:13).

This innovation is often fuelled by venture capital seeking to monetise sharing (Hobson and Lynch, 2014; Richardson, 2015), and monopolise an industry, generating ever increasing numbers of transactions on the platform in order to maintain revenue growth (Schor and Fitzmaurice, 2015). These monopolising platforms can then generate significant 'network effects' that consolidate their market position (Weber, 2014; Fremstad, 2017; Fuentes-Bracamontes, 2016; Henten and Windekilde, 2016; Lougher and Kalamanowicz, 2015).

Peer-to-Peer (P2P)

The importance of the Peer-to-Peer (P2P) factor in the sharing economy is underlined by the interchangeable use of the terms ‘Peer Economy’ or ‘P2P Economy’ for the sharing economy, and its use as a signifier for a whole economy, as referenced in table 5.8.

Table 5.8: Typology of P2P from the systematic review papers

Form of P2P	**References**
Method of exchange/marketplace	Lampinen et al, 2015; Martin et al, 2015; Lamberton, 2016; Hamari et al. 2015; McNeill, 2016; Weber, 2016; Morgan and Kuch, 2015; Barnes and Mattsson, 2016
Platform, firm, service, or business model	Mikhalkina and Cabantous, 2015: 12; Hobson and Lynch, 2016: 18; Ballús-Armet et al, 2014: 27; Hong and Vicdan, 2016: 135; Cohen and Kietzmann, 2014: 285; van Nuenen, 2016.
Mode of connection	Bandyopadhyay, 2016; Schor and Fitzmaurice, 2015; Roh, 2016
Signifier of a whole economy	Shaheen et al, 2016; Cheng, 2016; Bonciu and Bâlgăr, 2016; Luckner et al, 2015; Tussyadiah, 2016; Bauer and Gegenhuber, 2015

It short it refers to the decentralised nature of the economy (Lamberton, 2016; Richardson, 2015; van Nuenen, 2016; Hamari et al, 2015), and the direct connection of 'peers' to create a "peer community" (Lampinen et al, 2015: 21) or "peer network".

It is this confluence of ICT, physical infrastructure, platforms and peer technology that provides the foundation for the sharing economy. This foundation is what enables the sharing economy, much like many other economies, to grow quickly and to an enormous scale. It is when it interacts with the social dynamics below that it begins to take on the more familiar framings of sharing.

5.4.2 Social dynamics:

Trust and reputation

Pera et al (2016: 44) assert that reputation "is now considered a new currency for transactions in collaborative consumption platforms". There are also numerous studies of user motivations in which engendering trust is highly correlated with initial or maintained participation in the sharing economy (Lampinen et al, 2015; Forno and Garibaldi, 2015; Hamari et al, 2015).

Development of trust between strangers - impersonal trust - is considered to be what sets the sharing economy apart from previous forms of sharing (Schor and Fitzmaurice, 2015). As a platform for exchange, there are consumer behaviours at work which are intrinsically linked to a need for trust (Hartl et al, 2016). Demonstrating how marketing conceives trust as a "key enabler of relational exchanges", Ndubisi et al (2016: 258) quote Moorman et al's, (1993) relational concept of trust as "a willingness to rely on an exchange partner in whom one has confidence".

For some this trust amongst strangers is already prevalent (Forno and Garibaldi, 2015), but for others it needs to be cultivated, and many papers (Teubner and Flath, 2015; Heylighen, 2017; Ert et al, 2016) make reference to "technical mechanisms and reputation systems" (Germann Molz, 2013: 215) for building or engendering an environment of trust.

Community and social media

Communities, be they online or offline, are viewed as vital in developing this trust (Möhlmann, 2015; Tussyadiah, 2016). Lampinen et al (2015: 17) note how "online peer-to-peer exchange systems can create or support a sense of community". The difficulty, they found, is in balancing this sense of community, with a need to build a 'critical mass' and to exploit 'network effects' (Lampinen et al, 2015: 30).

Operating at this scale opens up the need for stronger balancing factors such as 'community policing' and 'self-regulation' (Hartl et al, 2016). This in turn can lead to concerns about the "Orwellian surveillance implied by online reputation systems [and] the implicit exclusion or marginalization of individuals who do not meet the networks standards of 'like-mindedness'" (Germann Molz, 2013: 225). This can lead to Hamari et al's (2015: 2056) assertion that, "all regulatory systems seem to partly defeat the original ideas of sharing economies: freedom of exchange, altruism, and communal trust".

This is where social media, or social networking technologies, plays a role. Whilst it can support the physical access between peers (Bandyopadhyay, 2016) as an enabling technology, it is most readily charged with providing an element of the trust and reputation systems necessary for the sharing economy to succeed (Cohen and Munoz, 2016; Germann Molz, 2013; Ballús-Armet, 2014; Santana and Parigi, 2015).

Social relations

There is widespread agreement that the sharing economy relies upon social relations (Schor and Fitzmaurice, 2015; Kennedy, 2016; Benkler, 2006; Belk, 2010). This central human factor leads to more specific discussions about the impact of certain behaviours within 'sharing economies'. Most notable is the concern regarding 'free riding' (Hartl et al, 2016; Whitham and Clarke, 2016; Cohen and Kietzmann, 2014; Germann Molz, 2013; Hamari et al, 2015; Heylighen, 2017), and the potential for this to lead to a 'tragedy of the commons' (Hardin, 1968), thus necessitating calls for incentives and penalties (Lamberton, 2016; Bucher et al, 2016) to elicit the behaviour required for a successful economy.

Schor and Fitzmaurice (2015) cite work by Belk (2010) and Gell (1986) to underline how anthropologists have analysed the ways that sharing produces and reproduces social relations. They link this to the idea of a 'connected consumption'[26], which "is predicated on peer-to-peer relationships rather than existing market actors to

[26] They recognise the 'sharing economy' and then 'collaborative consumption' as related terms to be used interchangeably, but suggest that connected consumption better emphasizes the social and digital dimensions.

mediate exchange" (Schor and Fitzmaurice, 2015: 410). Kennedy (2016: 463) also considers "the centrality of social relations to sharing" when tracing the 'conceptual boundaries of sharing' and highlights risks around privacy and security in the socially intensified arena of sharing.

From a process, particularly transactional process, point of view, these social factors combine to reinforce the trust and reputational systems seen as the currency of the sharing economy. These relations are not new, nor unique to the sharing economy, but the scale at which the enabling technologies allow them to operate at, is. These factors also support the framing of this phenomenon as altruistic, mystifying capitalist business as usual practices. This idea is explored further in the business models of the sharing economy below.

5.4.3 Business models:

Access

The move from ownership to non-ownership of goods, and a shift in consciousness towards access to services instead of possession of products, is arguably the defining feature of the sharing economy. Netter (2016: 65) cites Rifkin's (2000) earlier work on the 'Age of Access', when stating that "ownership was yesterday; today everything seems to be a matter of access", while Weber (2016: 574) describes the move from ownership to access-based consumption as a "paradigm shift". When searching for 'sharing economy', the most cited paper on both the Scopus (163) and Web of Science (109) databases is Belk's (2014a) 'You are what you can access: Sharing and collaborative consumption online'. This paper points to a 'post-ownership' economy and joins similar references to an access-based economy or consumption (Bardhi and Eckhardt, 2012; Hartl et al, 2016; Miller, 2015; Tussyadiah and Pesonen, 2015; Fuentes-Bracamontes, 2016; Richardson, 2015; Hong and Vicdan, 2016; Cheng, 2016; Kathan et al, 2016; Barnes and Mattsson, 2016; Bucher et al, 2016).

Access is also a central premise of many of the definitions put forward for the sharing economy. Richardson (2015: 122) highlights two, the first from sharing economy entrepreneur Alex Stephany (2015: 205), which suggests the sharing economy is constituted by "the value in taking under-utilised assets and making them accessible online to a community, leading to a reduced need for ownership". Whilst the second is the definition from the UK Government's independent review (Wosskow, 2014: 13), outlined already in the section on *Platforms*.

The concept is linked to one of the three subsystems of 'collaborative consumption' as identified in the most widely cited text in this review, 'What's Mine is Yours: The Rise of Collaborative Consumption' by Botsman and Rogers (2010) - cited by 43% of papers. Numerous authors (Netter, 2016; Tussyadiah, 2016; Heinrichs, 2013; Matzler et al, 2015; Lamberton, 2016; Roh, 2016) point to their identification of 1) product service systems, 2) redistribution markets, and 3) collaborative lifestyles. These product service systems represent a servitisation of consumption and the

recognition by firms of the value of access based business models over more traditional ownership models (Matzler et al, 2015).

Intermediation

The decentralising peer-to-peer aspect of the sharing economy was thought to be reducing the impact of traditional market mediators (Bandyopadhyay et al, 2016; Schor and Fitzmaurice, 2015; Morgan and Kuch, 2015; Killeen, 2015; Forno and Garibaldi, 2015; Martin, 2016; Söderberg, 2016; Bucher et al, 2016). However, the intensification of 'sharing platforms' as sole intermediary has led to the term 'intermediary' being used synonymously for platform or firm (Cohen and Munoz, 2016; Richardson, 2015; Lougher and Kalmanowicz, 2015). Lougher and Kalmanowicz (2015: 2) even define the whole sharing economy in terms of the intermediary function of the platform, while Weber (2016: 574) credits the growth of the 'peer-to-peer economy' largely to these "innovative intermediaries".

Weber's (2014: 37) earlier study of 'intermediation in a sharing economy', demonstrates the positive aspects of this intermediary role in overcoming a "persistent agency problem". Here, the intermediary is seen as vital in generating trust through their reputational and matching systems, as well as by providing insurance. This reduces information asymmetries and risks, and provides the moral hazard, which encourages participation. However, Lougher and Kalmanowicz (2015: 9) warn of the monopolising impact of these intermediaries, "particularly if they are considered to provide only the economic activity of intermediating supply and demand". Similarly, Bauer and Gegenhuber (2015) explore how tech and communications based intermediaries are becoming a 'new digital elite', and Teubner and Flath (2015: 322) talk of a 'concentration' of ride-sharing platforms and a "winner takes it all" market.

Disruptive innovation

Across the literature, as well as industry and media, the term disruption is widely used, and its meaning is almost unanimously applied. It connotes the use of new technology to break up traditional industries, or as Pisano et al (2015: 195) suggest, it relates to:

> "N*ew entrants using new technologies which lower costs, change the terms of trade and/or enable a more convenient or direct access for customers in an innovative way*".

The term is most commonly used in reference to business models, markets and industries e.g. the disruption of the taxi industry by Uber (Miller, 2016), but it is also applied to broader concepts such as the disruption of unsustainable practices like hyper-consumption (Botsman and Rogers, 2010, quoted in Martin, 2016: 149) or materialism (Netter, 2016); demographic disruption (McNeill 2016); or even disruption of whole economies (Heinrichs, 2013; McIntyre and Ortiz, 2016).

Despite this universal use in the sharing economy literature, it is necessary to highlight that this does not reflect the general academic consensus on the theory of

disruptive innovation. Bowyer and Christensen (1995) originally defined disruptive innovation in relation to the expansion of markets from under-served sections of customers. Christensen et al (2015) revisit this definition for an explicit illustration of why Uber does not represent disruptive innovation. This is predicated on Uber's targeting of existing primary markets with a superior product, what they would call a 'sustaining innovation'. The implication of this is that incumbent industries are unable to properly react to the threats posed by sharing economy platforms, since the approach required to compete with a sustaining innovator is entirely different to that for a disruptive innovator.

Prosumption

Prosumption is a portmanteau of 'production' and 'consumption' which has developed from the work of Toffler (1980) and the idea that production and consumption exist on a spectrum, with consumers forming part of the production process and vice versa. Cohen and Munoz (2016: 88) describe it as a "continuum from sustainable consumption to sustainable production, allowing for hybrid models which include both consumption and production at their core".

Across the literature there is talk of a "blurring" of (Kennedy, 2016: 467; Heinrichs, 2013: 230), or "interchangeability" between (Richardson, 2015: 127), the "twisted roles" of consumers and producers (Bauer and Gegenhuber, 2015). This "porous" boundary between roles (Puschmann and Alt: 2016: 95) enables customers to become part of value creation (Bouncken and Reuschl, 2016), and leads to a difficulty in categorising the "growing network of players" (Brugnoni et al, 2016: 200). This difficulty has led to other portmanteaus and descriptors being employed throughout the literature such as "produser" (Kennedy, 2016: 468); or "working consumers" and "consuming producers" (Bauer and Gegenhuber, 2015; 662-63); and it has been linked to similar concepts such as "co-creation" and "co-production" (Forno and Garibaldi, 2015: 205).

Communications

Communications can be broken down into two aspects: the technical discussions of how communication is used to strengthen the connections between peers (Luckner et al, 2015; Banning, 2016); and the way that the academic community, the media, and the 'sharing platforms' themselves, communicate the values of the sharing economy i.e. related to marketing, trust, and personal branding (Ndubisi et al, 2016; Lobinger, 2016; McIntyre and Ortiz, 2016; Pera et al, 2016).

The former aspect links into the concept of the crowd. Bauer and Gegenhuber (2016: 671) underline the role of communications for crowd-sourcing, "one-to-all communication is powerful. Initially, when limited to one-way communication, it turned everyone into audience (i.e. consumer). Since it functions both ways and recipients can efficiently respond to broadcast calls, everyone is becoming a supplier: what they own (i.e. goods and assets), can do (i.e. skills, expertise, and creativity), or come by (i.e. observations and experience) turns into potential input and means for production".

The latter raises concerns similar to 'green-washing' in the sustainability literature, where approaches are labelled as 'green', even though they demonstrate little or no 'green' credentials. In the sharing economy, this 'share-washing' has been characterised simultaneously as a deliberate attempt to mask business as usual practices (Sahakian, 2015); as a way to 'mystify' commercial operations (John, 2013a; 2013b); or even as pernicious extensions of capitalism into previously out of reach spaces (Martin, 2016). This latter work by Martin (2016) specifically explores the different framings and motivations employed by various actors both looking to support, as well as to deter, the sharing economy.

Asymmetry of information
Also referred to as "market transparency" (Puschmann and Alt, 2016: 98), this factor builds on Hayek's (1945) foundational work on 'The use of knowledge in society', and the concept that information is distributed and decentralised to the point that no single entity can have full knowledge (Bandyopadhyay et al, 2016).

The distributed nature of the sharing economy was seen to mirror this pattern of information (Fuentes-Bracamontes, 2016), but also that it can help to overcome certain asymmetries that were previously exploited by intermediaries for profit. This is linked to more efficient matching of producers and consumers, or providers and users (Heylighen, 2016; Schor et al, 2016; Fremstad, 2016; Elert and Henrekson, 2016), and contributes to reduced transaction costs (Schor and Fitzmaurice, 2015), and better optimisation of resources (Munger, 2016).

The focus on business models is to be expected due to the large percentage of papers from this discipline, and due to the sharing economy's emergence from an innovative industry perspective. Both the most cited paper (Belk, 2014a) and book (Botsman and Rogers, 2010), along with the more historic assertions by Rifkin (2000), support the contention that access is a central, and unique, factor of the sharing economy. As shown through the thematic mapping, this business model, powered by the enabling technology, allows for near limitless scalability, and the creation of the other trans-thematic factors - multi-sided markets that generate significant network effects. The sharing economy is primarily an economy of access.

The monopolising tendency of the intermediary platforms, combined with the mystifying effects of the brand and communications strategies employed, requires careful study in order to mitigate the negative impacts explored below.

5.4.4 Impacts:

Idle capacity or under-utilised resources (environmental impact)
The 'idle capacity' of a resource is a term popularised by Botsman and Rogers (2010)[27], and is considered to be the defining factor of the sharing economy (Botsman, 2016), as well as the central principle in its claims for sustainability (Morgan and Kuch, 2015; Kopnina, 2017).

[27] Idle capacity is labelled as one of four 'underlying principles' of 'collaborative consumption', along with trust between strangers, a belief in the commons, and critical mass.

As identified above, Botsman and Rogers (2010) highlight how ‘product service systems’ will enable access to products in lieu of the need for ownership, and they assert that this will allow for the 'idle capacity' of those resources to be minimised. This optimisation of resources therefore forms the theoretical basis for their claims that the sharing economy can support a transition towards [environmental] sustainability. This is best illustrated in their popularly cited analogy of sharing access to a power drill, whereby the ‘users’ do not actually require the asset of a drill, but the service of having holes in their wall. Since the average power drill is used for just a few minutes in its whole lifetime (Botsman and Rogers 2010: 83) an optimised service could instead be arranged that provides users with access to a shared drill. This negates the need for each user to purchase their own under-utilised asset, thus minimising the environmental impact by reducing the amount of materials needed for building multiple drills. This is the theory being applied to transportation (Ambrosino et al, 2016) and tourism (Richard and Cleveland, 2016) in particular, but also to food production (Wekerle and Classens, 2015); energy generation (Fuentes-Bracamontes, 2016); and computing power (Boron et al, 2017), to name a few.

Elsewhere, Matzler et al (2015:72) define this as the need to "obtain value from untapped potential residing in goods that are not entirely exploited by their owners", and assert that this is the "central conceit" of ‘adapting to the sharing economy’. This utilisation of untapped potential is not a new idea, but, certainly on a household level, it became more attractive during the 2008 financial crisis and the volatile times that followed (Schor and Fitzmauzrice, 2014; Hobson and Lynch, 2016; Hartl et al, 2016; Cohen and Munoz, 2016). However, Morgan and Kuch (2015: 574) warn that the idea of 'idle capacity', "conveys an image of dormant assets waiting to be monetized", embedding what they call a "techno-optimistic, extractive version of sharing", which marginalises the visions of the sharing economy as an "activist social movement" (Morgan and Kuch, 2015: 573).

Labour (social impact)

One of the many dichotomies in the sharing economy is around labour relations. On one hand there is great potential for more flexible work, with reduced entry barriers, greater control and freedom for workers, and an ability to earn during volatile financial times, leading to a wave of micro-entrepreneurship (Martin, 2016; Pera et al, 2016; Morgan and Kuch, 2015). While on the other hand, there is the risk of creating a 'precariat' (Standing, 2011; Malin and Chandler, 2016), a precariously employed workforce who are permanently contracted and on-call, and who no longer benefit from worker rights and protections such as health care, training, holiday/sick pay, insurance, or pensions (Netter, 2016).

The factors of ‘prosumption’ and ‘crowdsourcing’ are relevant here as they contribute to how "the labour of production is downplayed as ‘creativity’" (Kennedy, 2016: 468). With respect to crowdsourcing, Bauer and Gegenhuber (2015: 668) state that this "increases market efficiency and strengthens sourcing actors’ bargaining power ... [and] reduces prices by including contributors who are

willing to accept particularly low prices", it also raises “important ethical implications” around exploitation. Söderberg (2016) explores how issues of control and consent that were present in the physical factory, have now been migrated into the 'cloud factory'. He argues that the situation may be worse today due to a form of 'false consciousness', which leads to situations whereby, "consent has been organised so effectively that respondents do not recognise what they are doing as work, nor identify themselves as workers. The workers are beguiled into thinking of themselves as users, fans and makers" (Söderberg, 2016: 5).

Reducing transaction costs, consumption & capitalism (economic impact)
The most commonly cited motivation for participation in the sharing economy is to reduce transaction costs, whether as a user motivation for initial or continued participation (Matzler et al, 2015; Möhlmann, 2015; Tussyadiah, 2016); or related to business cost reduction for platforms/firms (Bauer and Gegenhuber, 2015; Lougher and Kalmanowicz, 2015; Kathan et al, 2016).

This is not the only motivating factor, but the utilitarian motivations related to price and convenience have significantly outweighed more altruistic or socially and environmentally driven motivations (Shaheen et al, 2015; Möhlmann, 2015; Tussyadiah, 2016; Schor and Fitzmaurice, 2015; Hobson and Lynch, 2016; Miller, 2016), with these seen not as the driver, but merely a positive side-effect of the sharing economy (Netter, 2016; Kathan et al, 2016).

Henten and Windekilde (2016: 7) explore 'transaction costs and the sharing economy', and highlight how the reduction in transaction costs for "searching, contacting, contracting etc" actually “creates the basis for new businesses based on handling transaction costs. This supports the notion of 'sharing platforms' as tech-based intermediaries, as opposed to sector specific firms, or agents for social or environmental change.

Many argue that the sharing economy is a social movement against (Schor and Fitzmaurice, 2015; Lamberton, 2015; Bauer and Gegenhuber, 2015; Hartl et al, 2016); an alternative to (Aptekar, 2016); a more sustainable version of (Möhlmann, 2015); or a disruption of (Heinrichs, 2013; Netter, 2016), consumption - particularly hyper-consumption (Netter, 2016; Martin, 2016; Martin et al, 2015; Richardson, 2015; Killeen, 2015; Barnes and Mattsson, 2016; Aptekar, 2016; Lamberton, 2015).

Despite the nature of exchange being under constant scrutiny in the sharing economy, the mode of consumption, and its links to capitalism and growth, are a primary factor in the academic literature. This primarily materialises as a focus on consumer value (Weber, 2016; Tussyadiah, 2016), and links to the above factors on reducing transaction costs and utilitarian motivations. The impact on consumption is difficult to measure and the potential for a negative rebound effect[28] to occur is

[28] Despite being put forward as an improvement to environmental efficiency, the act of increasing access to resources at a reduced cost may actually lead to an increase in the total use of resources, known as a negative rebound effect, or Jevon’s paradox.

of considerable concern (Hobson and Lynch, 2016; Heinrichs, 2013; Netter, 2016; Kathan et al, 2016).

As for the capitalist system as a whole, discussions can be broken into talk of alternative forms *of* capitalism, or 'sustainable consumption' (Möhlmann, 2015; Aptekar, 2016; Richardson, 2015; Cohen and Munoz, 2016); and the alternatives *to* capitalism (Schor and Fitmaurice, 2014; Heylighen, 2017). In the journal Geoforum, both Richardson (2015) and Cockayne (2016) underline this paradox, the former pointing to a "difference *from* or difference *within* 'capitalism'" (Richardson, 2015: 123, emphasis in original), and the latter suggesting that sharing in the 'on-demand economy', "promises both capitalism and its alternative" (Cockayne, 2016: 79). Others discuss how the sharing economy reinforces capitalism (Lebowitz and Trudeau, 2017; Banning, 2015; Martin, 2016), and can even extend neoliberalism into previously protected realms of living - the ideas of "neoliberalism on steroids" (Morozov, 2013, quoted in Netter, 2016: 74; Martin et al, 2015: 240; Martin, 2016: 149; Richardson, 2015: 121), or the "hostile worlds" view of Zelizer (2007, quoted in Schor and Fitzmaurice, 2015: 415).

However, this extension can also be positive, particularly in reference to food/garden sharing, as lawn dissidents (Lebowitz and Trudeau, 2017) and garden sharing programmes (Wekerle and Classens, 2015) challenge the boundaries of private property.

The impacts, both positive and negative, of the sharing economy are still emerging, and the question of whether it can provide “a potential pathway to sustainability” (Heinrichs, 2013) remains unanswered. The focus on the largely untested theory of idle capacity has not rendered much empirical support, and the sharing economy is only “*generally considered* to have a positive environmental impact” (Möhlmann, 2015: 196, emphasis added). And while “the effect *seems* obvious”, the “ecological impacts have been largely assumed and there are relatively few studies of how these new practices affect resource intensity and greenhouse gas emissions” (Schor and Fitzmaurice, 2015: 414, emphasis added).

Transitioning to fully optimised resources and avoiding negative rebound effects is essential for the next stage of sustainability. In order to achieve this, a more complex and compatible understanding is required. Heylighen’s (2017) work with the Global Brain and an ‘offer network’ addresses the complexity and intermediation problem in the sharing economy, likening it to the initial development of the internet and the creation of a network of networks, which enabled compatibility to be reached across the networks. Heylighen calls for a drive towards disintermediation through better compatibility and use of the global brain to co-ordinate transactions (and provide the complexity of information) directly with peers. This truly disintermediated peer-to-peer exchange could be a more fruitful avenue for sustainability.

5.5 Discussion

From this systematic and thematic analysis of the literature it can be induced that the sharing economy is a blending of enabling technological factors with particular social dynamics, which allow for a range of business models to emerge, which deliver a range of positive and negative impacts in the environmental, social, and economic spheres.

Incorporating the most cited factors into this conception of the sharing economy, an all-encompassing definition can emerge:

> The sharing economy is a system that evolves existing social dynamics related to community building, trust, and collaboration. It extends the power and scale of these practices using internet enabled, peer-to-peer platforms, developing monopolising intermediaries that enable widespread access to under-utilised resources. It has the, as yet unproven, potential to deliver positive environmental and social impacts, but is most readily associated with reducing transaction costs. Negative impacts relate to the increasing precariousness of employment, the rebound effect on consumption habits, and the extension of markets into previously personal spaces.

This broad definition accounts for the initial multi-disciplined academic work on the sharing economy, which, as shown earlier, demonstrated how the term was used as an umbrella for political malleability (Morgan and Kuch, 2015) and harnessed by numerous agents with different motivations and framings (Martin, 2016). This umbrella has only continued to widen by further academic enquiry from an increasing range of disciplines, and, as a consequence, now includes or substitutes for a number of other related terms. From a communications point of view, and considering the wealth of literature questioning the nature of sharing in the sharing economy (Banning, 2016; John, 2013a; 2013b; Kennedy, 2016; Bucher et al, 2016), it seems that returning to Rifkin's (2000) pronunciation of an age of access, or access economy, would be a far more beneficial approach. This could help to side-step any concerns about the use of contradictory for-profit models of sharing, and at the same time help to shine a brighter light on the diverse non-profit activity that is taking place.

Outside of this access to under-utilised resources, many of the factors outlined, even when combined, do not betray a considerably unique economy. Scalable and ubiquitous ICT is the central focus in most modern [digital] economies, and for interactions to take place there has always been a need for trust, borne out of communities and subsequent communications. The extension of this trust across great distances, or even the creation of impersonal trust (Schor and Fitzmaurice, 2015), is no more required in the sharing economy, as it is for any transaction that takes place in a globalised society. The increasing shift from ownership towards product service systems, along with a continued erosion of the role of multiple intermediaries could again be aligned to our digital, globalising society, along with our desire for reduced costs, and utilitarian motivations.

Where the sharing economy has the greatest opportunity to distinguish itself, is as a niche platform technology, one that is predicated upon access to under-utilised resources. This can be as a for-profit business model, such as Uber and AirBnB, or as a more activist movement targeting social or environmental sustainability, such as Freecycle. But for it to maintain that uniqueness, then there has to be a renewed focus on the idle capacity of any resources employed. People taking out car loans just to drive for Uber (Uber, undated) is an example of Morozov's (2013) economy on steroids, or Martin's (2016) nightmarish form of neoliberalisation, and will only strengthen calls for a more complex understanding of the potential negative rebound effect of this economy.

It is in this spirit of understanding complexity that this research was undertaken, in order to provide greater analytical understanding for local decision-makers. Identifying what is unique about this economy, and seeking to better communicate this uniqueness, may seem like a futile mission, but as Christensen et al (2015: 45) pointed out with the many mischaracterisations of 'disruption', "different types of innovation require different strategic approaches". If we continue to widen the term sharing economy to incorporate almost any on-demand digital service, then, as with 'disruption', "managers may end up using the wrong tools for their context, reducing their chances of success" (ibid.). It is therefore vital that decision-makers understand what they are dealing with so that they may grasp the opportunity or deflect the threat. With this clearer outline of the factors of the sharing economy, local decision-makers can better incorporate 'access platforms' and firms into the delivery of their services and help them to achieve their key priorities. At the same time, they are better equipped to identify threats to these priorities from aggressive business as usual firms that may seek to mystify their detrimental activities, or as Christensen et al (2015: 45) described it, those who "use the term loosely to invoke the concept of innovation in support of whatever it is they wish to do". By having this clearer understanding, local decision-makers can more confidently direct investment or take any necessary regulatory steps.

5.5.1 Limitations and further research

This systematic review by no means captures all the factors of the sharing economy, and researchers from different academic disciplines or backgrounds are likely to induce different priorities and themes. It represents the approach of one researcher with an interest specifically in the confluence of evolutionary economics, industrial organisation, and sustainability studies, in the pursuit of more economically sustainable urban models.

Future research will examine expert opinion from city administrations in the UK, to assess the importance of the factors identified in the literature in relation to the implementation of access platforms in public service delivery – situated as an evolution of co-production. As has been outlined elsewhere, the environmental and social sustainability gains of the sharing economy are, for the most part, still theoretical, and largely premised on the concept of optimising idle capacity from Botsman and Rogers (2010). The potential for a positive transition is still there but

any attempt to implement sharing economies as part of this needs to be well considered. Empirical work is needed to explore the actual gains [accounting for any value-action gap], and to begin the mammoth task of understanding the complexity related to assessing the negative rebound potential.

Exploring the misapplication of disruptive innovation, research into the true nature of disruption by sharing economy platforms in cities would be of significant value, particularly in relation to how platforms and cities could maximise the benefits of this disruption, and further a transition to sustainability.

There could also be interest in an update to this review, with more recent papers. There has been an explosion of work since this initial search was conducted in November 2016. At that point it generated a total of 339 results on Scopus and Web of Science combined. A more recent search (June 2018) yielded a total of 1478.

6
PLATFORM PUBLIC-SECTOR? USING SHARING PLATFORMS TO DELIVER PUBLIC SERVICES AND SOCIAL VALUE IN ENGLISH CITIES UNDER AUSTERITY

6 PLATFORM PUBLIC-SECTOR? USING SHARING PLATFORMS TO DELIVER PUBLIC SERVICES AND SOCIAL VALUE IN ENGLISH CITIES UNDER AUSTERITY

Phil Northall, School of Geography, University of Nottingham

6.1 Abstract

Sharing platforms i.e. intermediary infrastructures that enable access to under-utilized assets, are now an everyday phenomenon, providing transportation, holiday accommodation, creative skills, home maintenance, and many other services. Their ability to make better use of assets by optimizing access to that asset is the central premise in claims that they can deliver more sustainable cities. Whilst this claim is still heavily debated, the use of sharing platforms by the public-sector remains largely unexplored. This paper begins to resolve this oversight, presenting twenty-four interviews with Senior Directors in eighteen English urban local authorities, exploring their current and potential future use of sharing platforms, outlining the key barriers and enablers to this activity, and addressing the question of whether they can be used to deliver public services more effectively? The context of central government austerity policy drives the necessity for local authorities to deliver public services in more economically sustainable ways such as this, but also hinders their flexibility to do so. Most interestingly, this paper reveals how local authorities are not just implementing sharing platforms, but are themselves becoming platforms, moving away from their role as a provider and towards that of an intermediary enabler.

6.2 Introduction

Platforms and the platform economy have emerged as the dominant form of enactment in the modern (digital) economy. Some have suggested that this is the inevitable culmination of over half a century of economic policy (Srnicek, 2016), whilst others see this as a much more temporary manifestation that is simply performing the structure of the latest cycle of venture capital (Langley and Leyshon, 2017). These debates notwithstanding, the platform economy is having important impacts on socio-economic life, particularly on the nature of labour and structure of industrial organization. A global survey of platform enterprise (Evans and Gawer, 2016) found that 176 platforms contributed to a market cap of $4.3tn and employed 1.3m people. At the same time, the sharing economy has also emerged, primarily utilizing platform technologies and business models, with the aim of providing greater access to under-utilized resources (Botsman and Rogers, 2010).

This socio-technological landscape lends itself particularly well to studies of the digital technology (Kenney and Zysman, 2016), the business models (Täuscher and Laudien, 2018), the impact on certain groups, communities or urban spaces (Shield, 2018), and the role of Silicon Valley venture capital in shaping the platform economy (Langley and Leyshon, 2017). There has also been considerable attention

paid to the possible downsides, notably the impact on work and employment rights (Friedman, 2014; van Doorn, 2017). However, where this research makes its contribution is in its focus on the much less explored impact on local public service delivery, specifically the strategies used by local authorities operating under the strict financial constraints of austerity.

Within the complex conceptual environment, this paper will set out its understanding of both the sharing economy – based on an earlier systematic review of over 90 peer-reviewed academic papers (Northall, 2017 – Chapter 5 in this thesis) – as well as the platform economy – leaning heavily on the typology laid out by Srnicek (2016). It will then combine these two concepts with data from twenty-four interviews from eighteen English local authorities, conducted from Nov 2017 – Feb 2018, to assess the potential for 'sharing platforms' to contribute to economic sustainability in cities. Specifically, it will focus on the ability of English cities to incorporate this technology and business model into the delivery of local public services, assessing both current activity and potential opportunities. It outlines the factors that enabled existing activity to occur, as well as the barriers to any future opportunities.

Any activity taking place at the local authority level in England does so within the context, and constraints, of financial austerity, imposed by the current central government since 2010. This policy of reduced government spending has led to the Department for Communities & Local Government (now the Ministry of Housing, Communities and Local Government) having its funding more than halved between 2010 and 2015 (IFS, 2015). This was passed down to local authority budgets through the changes to the central government grants that local authorities rely on. This "marginalisation" narrative (Hastings et al, 2015: 601) for English urban authorities risks shifting the focus of attempts to transition to a broader understanding of economic sustainability on to a much narrower, cost-cutting approach. This has the potential to limit the ability of local authorities to experiment with new ways of working, such as sharing platforms, and on their ability to deliver social value in the long term. It will be argued that this limiting impact is already being realized, as data from this research demonstrates a higher-level shift in local authorities - rather than simply utilizing platforms, they are becoming platforms themselves, moving away from being a provider of services to merely an enabler of them.

6.3 Understanding Sharing Platforms

The term 'sharing platform' is not yet widespread and is therefore riddled with potential misconception and mischaracterization. This research combines two equally nascent areas of research, the 'sharing economy' and 'platform economy'. Both the sharing and platform economies have been nurtured in dynamic socio-technical landscapes (Geels, 2002), which has led to much overlap between, not just these two economies, but a plethora of other complementary and contested concepts, such as 'access-based consumption' (Bardi and Eckhardt, 2012); 'the

mesh' (Gansky, 2010); 'post-ownership' (Belk, 2014a); as well as similar economic constructions such as peer-to-peer economy; app economy; and most notably, the gig-economy. The exact typologies and boundaries of these concepts are still being debated, which, it has been argued, has led to the 'sharing economy' operating as a "floating signifier" (Richardson, 2015: 122), while the platform has been accused of being "specific enough to mean something, and vague enough to work across multiple venues for multiple audiences" (Gillespie, 2010: 349) – what Gillespie refers to as "discursive positioning" (ibid.) What this often leads to is a "semantic confusion" (Belk, 2014b: 9) given the range of actors and voices attempting to be included, leading to "contradictory framings" (Martin, 2016: 149), and a difficulty coalescing a meaningful, or operational, understanding. It is therefore unarguably vital for this analysis to begin with a very clear framework that outlines these two concepts.

6.3.1 The sharing economy

In this paper and the wider research of which it is a part, it is easy, and common, to use shorthand examples for platforms and the sharing economy, like Uber and Airbnb – often presented as the market leading sharing economy platforms in the tech and venture capital worlds. But it is important here to make very clear distinctions. Earlier work took to task the multitudinous definitions used in the peer-reviewed sharing economy literature (Northall, 2017 – Chapter 5 in this thesis) and focussed on the defining characteristic of providing access to an under-utilized resource – as originally outlined by Botsman and Rogers (2010). This was reinforced as the defining characteristic by a systematic review of over 90 academic papers which highlighted the role of many common socio-technical factors from ICT; peer-to-peer (P2P); trust and reputation; disruptive innovation; labour relations; intermediation; reducing transaction costs; and prosumption, to name just a few (Northall, 2017 – Chapter 5 in this thesis). However, it was this access to under-utilized resources that was identified as the defining feature, with the broader factors only contributing to these potential "contradictory framings" (Martin, 2016: 149).

Following on from this research and within the remit of the primary data collection outlined below, an interrogation of the current level of understanding of the 'sharing economy' within local authority senior management was conducted. This underlined the "semantic confusion" (Belk, 2014b: 9), as well as an operational misunderstanding, as examples given of existing sharing platform activity related to very loosely defined 'sharing' processes. The significance of this confusion can be linked to the mischaracterization of the term 'disruptive innovation', often used to describe the operations of many sharing economy firms, including Uber, to suggest a role in 'disrupting' incumbent industries (Christensen et al, 2015). As Christensen et al describe (2015: 45) "different types of innovation require different strategic approaches" and if these types aren't accurately identified and understood, then "managers may end up using the wrong tools for their context, reducing their chances of success" (ibid.). The similar misunderstanding of sharing economy firms by city policymakers could therefore lead to harmful consequences if threats are

not appropriately identified, as well as significant missed opportunities if the details of such are not properly articulated.

That previous research (Northall, 2017 – Chapter 5 in this thesis) made the case that a clearer and more effective term to describe the key factors at play was 'access platform', as this more adequately conveys the role of platforms in providing access to under-utilized resources and moves away from the contradictory notion of for-profit sharing. However, given the very limited uptake of this new interpretation[29], it was agreed that a more worthwhile exploration would be of the term 'sharing platform'.

6.3.2 The platform economy

Despite an increasing focus on platform activities and economies, Langley and Leyshon (2017: 13) suggest that the platform itself remains "largely invisible" in many accounts of this digital economy. Instead, they suggest, the focus has been on other aspects - many of which also overlap with the conflated understandings identified in the sharing economy literature – "such as 'co-production' (e.g. Prahalad and Ramaswamy, 2004; Thomke, 2003), 'prosumption' (e.g. Ritzer and Jurgensen, 2010), 'productive publics' (Arvidsson and Peitersen, 2013), and 'peer-to-peer' (Oram, 2001)" (ibid).

To better illuminate the platform in this research, the work of Nick Srnicek (2016) on 'Platform Capitalism' will be employed. As with the sharing economy above, Srnicek's (2016) analysis of platforms, or specifically platforms within capitalism, noted the broad typology, and wide variety of understandings, often related to disciplinary backgrounds. "At the most general level", Srnicek (2016: 43) defines platforms as:

> "*Digital infrastructures that enable two or more groups to interact. They therefore position themselves as intermediaries that bring together different users: customers, advertisers, service providers, producers, suppliers, and even physical objects. More often than not these platforms also come with a series of tools that enable users to build their own products, services, and marketplaces*".

In terms of a defining quality, Srnicek is particularly interested in the way that platforms can extract vast amounts of their "raw material", data. This differs from others who have considered the intermediating and capitalizing effects (Langley and Leyshon, 2017); the dynamics of participation, mediatization, and platformization (van der Graaf and Ballon, 2019); two-sided markets (Rochet and Tirole, 2003), or regulation (Ballon and Van Heesvelde, 2011; Gamito, 2017).

Even more pertinently, Srnicek examines how platforms organize and re-package that raw material into useful "insights" that can be sold or used to build more

[29] Limited despite many provocations towards an access economy since the turn of the century, in particular Rikfin's (2000) 'Age of access', and more recently, work in consumer behaviour by Belk (2014a).

lucrative products or services. It is these insights that pave the way for his typology of platforms, as shown in table 6.1 below.

Table 6.1: A typology of platforms, adapted from Srnicek (2016: 49-50).

Type of Platform	**Example**	**Description**
Advertising	Google, Facebook	"Extract information on users, undertake a labour of analysis, and then use the products of that process to sell ad space"
Cloud	AWS, Salesforce	"Own the hardware and software of digital-development businesses and are renting them out as needed"
Industrial	GE, Siemens	"Build the hardware and software necessary to transform traditional manufacturing into internet-connected processes that lower the costs of production and transform goods into services"
Product	Rolls Royce, Spotify	"Generate revenue by using other platforms to transform a traditional good into a service and by collecting rent or subscription fees on them"
Lean	Uber, Airbnb	"Attempt to reduce their ownership of assets to a minimum and to profit by reducing costs as much as possible"

Combining this typology with the broadest understandings of the sharing economy and it becomes clear why Srnicek places the poster firms of Uber and Airbnb in the 'lean platform' category. Due to its asset-stripping nature and need for high levels of venture capital, this category, Srnicek (2016: 75) contends, risks a "retrogression to the earliest stages of the internet-enabled economy" and a "[return] to the 'growth before profit' model of the 1990s" that fueled the dot-com bubble. On the other hand, the four other categories of platform identified - advertising, cloud, industrial, and product - all "develop business models that generate profits in some way" (ibid), and add value.

In the 'growth before profit' environment, where first-to-scale market dominance is so highly prized, the measure of success can simply be to be perceived as a big enough threat to a competitor's monopoly, and this can become the deliberate strategy of such lean platforms:

> "*If platform start-ups achieve sufficient prominence and promise and are bought out by a more dominant platform seeking or defending a monopoly position, then this equates to a viable and successful strategy*"
> (Langley and Leyshon, 2017: 25)

Success has also been outlined in terms of the business model itself. Bonchek and Choudary (2013, emphasis added) suggest that, "the success of a platform strategy is determined by three factors: *Connection*: how easily others can plug into the platform to share and transact; *Gravity*: how well the platform attracts participants,

both producers and consumers; [and] *Flow*: how well the platform fosters the exchange and co-creation of value".

Whilst understanding this typology and the measures of success, and having a clear definition of what a platform is, is absolutely necessary, it is Srnicek's proposed approaches to mitigating the worst tendencies of platforms - fragmentation of the internet and exploitation of labour – that provides unique motivation for this public-sector-focussed research.

Srnicek (2016: 95) outlines potentially harmful tendencies that he considers to be "built into the DNA of platforms" - the tendency for major platforms: to grow to immense size utilizing network effects; to converge towards a similar form; and to use enclosure as a key means of competing against their rivals (Srnicek, 2016: 113). To combat this, he does recommend stronger government regulation - on corporate anti-trust, user privacy, labour exploitation, and tax avoidance - but considers this only the most basic step in avoiding the negative impact of platforms. Instead, Srnicek calls for a more collectivist approach:

> "*Rather than just regulating corporate platforms, efforts could be made to create public platforms – platforms owned and controlled by the people…This would mean investing the state's vast resources into the technology necessary to support these platforms and offering them as public utilities. More radically, we can push for postcapitalist platforms that make use of the data collected by these platforms in order to distribute resources, enable democratic participation, and generate further technological development. Perhaps today we must collectivise the platforms*" (Srnicek, 2016: 128)

This is, therefore, the understanding of platforms employed in this paper and is used to explore the existing activity of, and potential opportunities for, public-sector platforms to deliver public services and social value at the local level. The driving motivation behind this exploration is from broader research into the sustainability of cities[30], one strand of which is to address specifically whether sharing platforms could deliver more economically sustainable cities in the future.

6.3 Cities Under Austerity

The drive for greater economic sustainability[31] has become increasingly urgent for urban local authorities in England – the empirical focus of this paper - as policies of

[30] This paper contributes to the 'economic theme' of the 'Sustaining urban habitats: an interdisciplinary approach' project, part of the Laboratory of Urban Complexity and Sustainability (LUCAS) at the University of Nottingham.

[31] There is insufficient room here to adequately expand on the contested concept of economic sustainability. However, for the purposes of this research it is considered to extend from international policy discussions related to 'sustainable development', defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987: 41). Economics is one of three dimensions, or pillars, of sustainability

austerity have been enacted following the 2008 financial crisis (Summers, 2009). Using data from HM Treasury, the Institute for Fiscal Studies (2015) showed the change in central government department expenditure between 2010-11 and 2015-16. While the average cut across all 21 departments was 16%, the Department for Communities and Local Government (DCLG) saw the highest cut, with a -51% change. Whilst this led to substantial cuts to local authority budgets across the whole of the UK, there was a clear disparity in the scale, with a disproportionate impact on urban local authorities. In their fine-grained spatial analysis of local budgets, Gray and Barford (2018, 558) assert that "the politics of austerity 'dumped' the fiscal crisis onto the local state", and that:

> "*In England, we found that cuts in central government grants were particularly severe for municipal budgets, and particularly the London boroughs and other cities with a legacy of an older industrial base*" (ibid.)

As austerity policy continued into the next period of Government, these same local authorities were to incorporate a devolution of delivery responsibilities - most notably in public health, but also transport, housing and policing - and an increase in transparency, including the direct election of Police & Crime Commissioners and executive Mayors. These responsibilities were to be handed down to newly established Combined Authorities – the amalgamation of multiple urban local authorities around a singular city-region - as outlined in the Cities and Local Government Devolution Act 2016. The motivation for this seemingly contradictory transfer of responsibility with less funding, was clear in the central government's earlier contention that, "while local authorities and other bodies at the local level will not have as much money, they will have much greater freedom to be innovative in the way that they work with and support their communities" (Lowndes and Pratchett, 2012: 23).

In an attempt to overcome the contradiction, other policies were introduced to try to fill the financial void, such as that of 'The Big Society' (Prime Minister's Office, 2010). This was to frame social responsibility in terms of the individual, wrapping up a distrust of the functions of government with localized responsibility for civic duties, or what Lowndes and Pratchett (2012: 37) refer to as "small state localism coupled with Big Society activism". This begs the questions, "in a policy environment of mixed incentives, will altruism or self-interest guide citizens' response (Blunkett and Richards 2011), and will localism amount to devolution or privatisation" (ibid.)?

Similarly, in their case study analysis of three English local authorities (Coventry, Milton Keynes, and Newcastle), Hastings et al (2015: 601) identify three strategies employed at the local level to manage austerity - efficiency, retrenchment, and investment. They situate these within opposing narratives of 'survival' or 'marginalisation' for local authorities - the former positively focusing on necessity-driven innovation and the "persistence and resilience of English local government"

- along with social, and environmental (Basiago, 1999) – though this siloed approach to sustainability has recently been questioned (Purvis et al, 2019).

(John, 2014: 687); and the latter warning of a "public service decay" (Stoker, 2012: 15). Based on their case study authorities, Hastings et al (2015: 617) conclude that "year-on-year efficiency measures may ultimately undermine the capacity of councils to adapt and perhaps survive", with considerable change required to ensure any such survival. It is between these opposing narratives that the primary research question of this paper sits.

6.5 Can Sharing Platforms Be Used To Deliver Public Services More Effectively?

Taking this central research question, the approach to addressing it was split primarily in two. Firstly, the existing use of sharing platforms in local authorities was identified, along with the factors that have enabled it to occur. Secondly, the opportunities for sharing platforms to be used to deliver public services or social value at the local level was discussed, along with an identification of barriers to such activity. This research design is illustrated in figure 6.1.

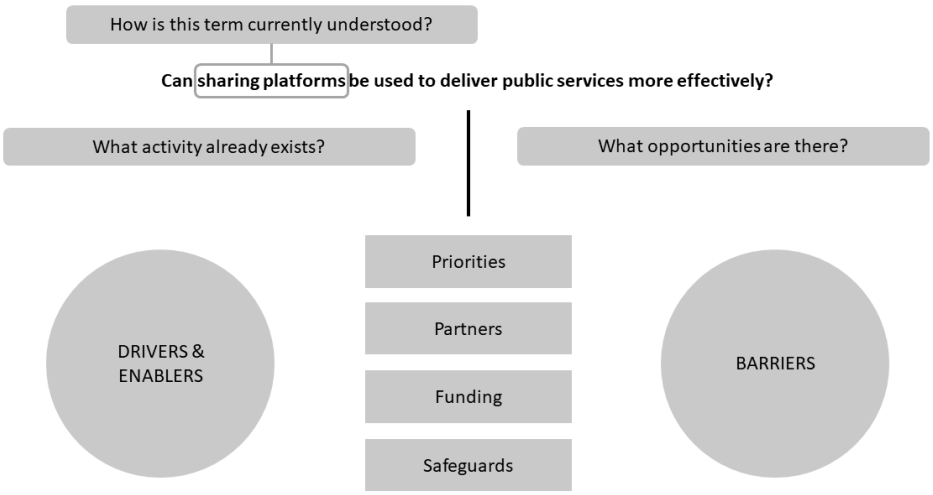


Figure 6.1: Research Design

Before outlining the methodology, it is important to define what is meant by "effectively" in this question. In this context, effectively means more than a simple streamlining of costs or the delivery of more financially efficient systems. Effectively requires that quality standards are at least maintained, or preferably improved. As outlined above, austerity places a significant burden on local authorities to focus on cutting their way out of debt, but the premise in this research question is that sharing platforms have the potential to both reduce costs and deliver an equal or better level of service to the users of local authority services. In doing so, the survival narrative could overcome that of marginalisation.

With the target of this research being to capture the knowledge related to current activity and ways of working, it was decided that the focus for data collection should be on experts within top-tier local authorities i.e. those which have

responsibility for all local services e.g. unitary authorities and metropolitan boroughs. This pointed towards the need for semi-structured interviews since they, "typically aim for depth and detailed understanding rather than breadth and coverage" (McDowell, 2010: 158), and for the involvement of the most senior participants possible, due to their more global view of local authority activity.

This research goes beyond the textbook outline of interviewing methods (Flowerdew and Martin, 2005) that describe "a conversation with a purpose" (Burgess, 1984) or attempts to paint "a deeper picture" (Silverman, 1993: 15). This is because the primary unit of analysis is expert testimony, and in particular, the expert testimony of decision-makers. Here the work of Burgman (2015: 2) is useful, defining experts as "people who are considered by their peers and society at large to have specialist knowledge and who are consulted to make an estimate or prediction". In his book, 'Trusting Judgements: How to get the best out of experts', Burgman (2015: 141) acknowledges the difficulties in working with decision-makers and notes their preference for "robust strategies" that only seek to avoid poor outcomes rather than to maximize benefits.

This context underlines the need for a clear framework and Burgman (2015: 141-142) lays out ten "rules" for "improv[ing] the judgements we elicit from experts". The most applicable with regard to this research are: the need for clear domains of expertise; the use of as many experts as possible; avoidance of arbitrary linguistic misunderstandings; and the use of structured question formats.

In choosing the experts to invite for interview a number of factors were used to ensure that only relevant domains of expertise were explored. This required the identification of Senior Directors in the most suitable directorates within English local authorities. With the focus on urban local authorities, only unitary authorities and metropolitan boroughs were targeted i.e. those with singular responsibilities for the delivery of key public services[32]. The structure of these authorities does not differ dramatically in essence, with minor variations in titles, or with a small number, e.g. Wolverhampton City Council, employing more explicit 'business-like' terminology, such as Managing Director as opposed to Chief Executive.

This means that the domains of expertise targeted were across the local authority spectrum and resulted in interviews with Senior Directors in Economic Development Commercial & Business; IT, Finance, Systems & Transformation; Policy, Performance & Strategy; and Regeneration, Housing & Communities. This broad range of domains was also complimented with viewpoints from two sharing platform programme managers, allowing for the potentially political and long-term views to be tempered with a more immediate and technical view.

[32] Despite London Boroughs being highly effected by austerity, they were excluded from the research because their responsibilities differ from those of unitary and metropolitan boroughs, and this research sought a focus on the approaches of 'ordinary cities' (Robinson, 2006). Further research in London would be of considerable value to those with an interest in megacity impacts.

In order to produce as wide a range of understandings as possible, all the contact details of Senior Directors in the identified domains were collated from publicly available sources - usually the local authority's organizational structure on their website. With the focus on urban local authorities, a contact list of 104 directors in 48 local authorities was compiled. From this, twenty-four interviews in eighteen local authorities were completed – a conversion rate of 23%, with representation from 38% of the authorities approached. The full list of authorities is shown below in table 6.2 and is mapped on figure 6.2. This map illustrates the good regional spread of authorities covered, with only the South West not represented. Whilst it is unfortunate not to have representation from all eight[33] English regions, in the context of this research, there is no unique factor about any of the regions that makes their inclusion or exclusion a methodological concern. There is also a good split between unitary authorities and metropolitan boroughs, both of which are top-tier authorities with broadly similar responsibilities.

Table 6.2: List of local authorities involved in interviews

Local Authority	**Region**	**Authority Structure**
Birmingham	West Midlands	Metropolitan Borough
Blackburn with Darwen	North West	Unitary Authority
Brighton and Hove	South East	Unitary Authority
Kirklees (2)	Yorkshire	Metropolitan Borough
Leeds	Yorkshire	Metropolitan Borough
Manchester	North West	Metropolitan Borough
Middlesbrough	North East	Unitary Authority
Milton Keynes (2)	South East	Unitary Authority
Newcastle (2)	North East	Metropolitan Borough
Nottingham (3)	East Midlands	Unitary Authority
Peterborough	East of England	Unitary Authority
Sheffield (2)	Yorkshire	Metropolitan Borough
Solihull	West Midlands	Metropolitan Borough
Southampton	South East	Unitary Authority
St Helens	North West	Metropolitan Borough
Sunderland	North East	Metropolitan Borough
Tameside	North West	Metropolitan Borough
Wolverhampton	West Midlands	Metropolitan Borough

*One person interviewed in each authority, unless shown in brackets

[33] As previously noted, the London region was excluded from this research.



Figure 6.2: Map showing the regional locations of the local authorities interviewed

The remaining concerns from Burgman related to the language used and use of a clear structure, both of which were aided by having only one interviewer, this author. Figure 6.1 was the basis of the question structure, with the semi-structured format allowing for the interview to progress naturally and move freely between the topics, whilst also ensuring all aspects were addressed. In terms of the language used, a clear outline of the term 'sharing platform' and its relationship to the 'sharing economy' was provided in all email correspondence preceding the interviews, with additional information provided upon request. This followed the outline above, with a focus on providing an access to under-utilized resources. The opening question was also used to ground the language used in the interview, with participants asked to provide their understanding of the term without prompting, with a repeat of the definition provided afterwards. This approach was useful, not just in terms of situating the language and conceptual detail employed throughout

the interview, but also in supporting the hypotheses related to the problems inherent in mischaracterizing concepts, highlighted earlier. In short, there was a broad spectrum of understanding stretching from well-established ideas from the turn of the century and earlier - such as shared services and joint working – to more nuanced understandings going beyond the access to under-utilized resources definitions and into the realms of the internet of things, smart cities, and even artificial intelligence and chat bots. Unfortunately, there isn't the scope within this paper to explore this understanding in more detail, and the following results focus on the primary research design.

6.5.1 What sharing platform activity is currently taking place?

When asked to outline existing sharing platform activity, the overwhelming majority of discussions focussed around an overlapping approach to building rationalization and the creation of shared service centres, along with widespread data sharing – see table 6.3. Driven by central government directives such as the 'One Public Estate'[34] or 'best endeavours'[35], local authorities are undertaking mapping and strategy exercises to maximize the use of their existing assets, reduce overheads and to ensure they get the best value for money from them:

> "*If you have got in effect three different services and three managers and you could do some merger to pull them together, you probably still only need one manager. So actually what you are doing is protecting your frontline activities which therefore means that you are maintaining the services for the community and you are reducing your managerial overheads…It is actually reducing your managerial and property costs because these can be very, very significant*" (Director of Place, P01)[36].

Table 6.3: Most cited sharing activities

Activities	Sources
Building Rationalization	14
Data Sharing	12
Public Health + Social Care	12
Shared Services + Joint Working	8
Library Services	8

Whilst there is acknowledgment of how rationalization processes can help protect frontline delivery of services, the motivation is clearly cost-saving. However, there is an awareness of how the quality of services can also be improved through the provision of shared service centres, with an integrated reception and a "no wrong

[34] One Public Estate is a joint Local Government Association (LGA) and Cabinet Office programme that encourages a more strategic approach to asset management. The focus is "about getting more from our collective assets" - see https://local.gov.uk/topics/housing-planning-and-homelessness/one-public-estate.

[35] Best endeavours is the legal duty to ensure that all reasonable efforts are made to ensure the best outcome from the use of a public asset.

[36] As part of the ethics procedure for this research, all participants were guaranteed anonymity, therefore only a generalised title is used, along with the participant ID number.

door concept" (Director of Economy, P15) i.e. ensuring that no service user is turned away, no matter which department they approach first. There is also recognition that more services in the same 'hub' can create a more vibrant and positive environment for service users (Director of Place, P01). Many authorities described 'one stop shops' involving the Police, DWP/Job Centre, HMRC, Credit Unions. Whilst one Director of Economy (P05) suggested a much wider rationalization should be considered, involving agencies such as the Clinical Commissioning Groups (CCGs), Fire Brigade, Ambulance Service, and other Community & Voluntary Groups.

One of the most common services involved in this building rationalization process are libraries. There is much involvement from both third and private-sector delivery bodies in these spaces, with one Director of Place's (P12) authority having a tiered approach to library delivery from full time, paid staff at the top, to completely voluntary staff at the bottom of the tier. This raised concerns around job losses, and the role of voluntary groups, as well as private contractors, in the delivery of public services. These issues have been echoed across local and national press (Hawley, 2018; BBC, 2016), and are also highlighted in wider research on the detrimental impact of the sale of public assets (Barford and Gray, 2018).

Data sharing was also frequently identified as an important area of activity, particularly with the police. Beyond this use, data protection and commercial value were considered difficult barriers to overcome (Director of Place, P12). However, one authority is looking much further into the future of data use, and here the Director of IT (P13) considers technology and data sharing as a way to improve user control and choice; reduce demand on LAs; and target preventative approaches. Their contention was that demonstrating the added value that can be provided would encourage residents and businesses to share more data, allaying concerns over the strict General Data Protection Regulations (GDPR) that were recently introduced across Europe:

> "*So I think GDPR should put an onus on individuals to say this is your data, decide how you want to share it, but it's up to us then to say how we're going to use that information and to what benefit, what purpose? If I said to somebody, you show me that information, I could do all that for you, I think people would say fantastic. You know, have as much information as you want because you've got to look after me. If I say, tell me everything that you're doing throughout the day, I'm not going to tell you what I'm going to do. No way, that's big brother. I think that's the two sides of it*" (Director of IT, P13).

Despite putting a clear emphasis on providing examples that demonstrate an access to under-utilized resources at the outset of this research, these comparatively well-established approaches to local authority working given by the participants largely do not pertain to this core requirement of sharing platforms. For many of the examples provided, there was an emphasis on the social or environmental value, and they were often community projects or social enterprises, but they still did not conform to the definition of a sharing platform. However, a number of more

appropriately defined activities were discussed - these include asset-sharing (Kirklees, Peterborough); collective energy (Milton Keynes; Newcastle; Sheffield; Sunderland); food sharing (Birmingham; Brighton; Milton Keynes; Sheffield); bike and car share schemes (Brighton and Sheffield); skills exchanges or timebanks (Blackburn, Newcastle, Southampton, Sunderland); and shared workspaces (Birmingham; Nottingham; Solihull; Tameside) – see table 6.4.

Table 6.4: Most relevant sharing activities

Activities	Sources
Skills Exchanges / Timebanks	4
Asset Sharing	4
Collective Energy	4
District Heat Networks	4
Food Sharing	4
Leisure Facilities	4
Outsourcing	4
Shared Workspaces	4
Bike/Car Share	3

Some of these activities, such as bike share and collective energy are still questionably sharing platforms, in that the asset involved is not an existing under-utilized asset, it is merely provided especially for this purpose and its availability is then optimized. However, there were several innovative examples that took advantage of existing assets, used a platform to deliver the service, and also targeted a particular local priority. These include Sussex Nightstop (Brighton), which targets young people at risk of homelessness and provides temporary accommodation in the spare rooms of local residents; Share Peterborough, which allows local businesses to share old office and industrial equipment that would otherwise become waste; Good Gym (Sheffield) part of the Ageing Well initiative, and which "arose out of a frustration with normal gyms being a waste of energy and human potential", (GoodGym, undated) and matches people who want to get fit with elderly people who need work doing; and PlaceGo (Manchester), also part of an Ambition for Ageing initiative targeting social isolation, and providing a community generated events forum, to highlight existing activities for the elderly.

Others were also mentioned that were not taking place in the authority in question but were being considered for implementation. These included Give & Take Care, a Brunel University developed timebank for social care, in which people could provide care now in return for care from others in the future, and currently operating in Berkshire, Leicester, and Rochdale; and Wiltshire Community Transport, a community interest company set up to organize the myriad of not-for-profit transport companies that were providing transport to elderly and vulnerable users.

From these examples provided, the platform of most interest, and relevance, was the asset-sharing platform, Comoodle, in Kirklees – see box 6.1.

Box 6.1: Comoodle - helping communities help themselves by sharing

Extending the idea of local Tool Libraries[37] and online asset sharing websites, such as Borroclub (www.borroclub.co.uk), Comoodle (www.comoodle.com) goes a step further. Not just providing the platform to bring together users and providers, Comoodle also contributes a considerable number of local authority assets for use as well. Assets include sports or event equipment; community buildings and spaces; volunteers; and even vehicles – all existing assets that would otherwise be under-utilized. There are rules on what can and can't be provided and any costs that can be charged – everything must be offered for free but may require basic costs to be covered e.g. travel cost of provider, or heating and lighting cost of spaces provided.

The set up and initial running costs of this platform were covered by a €1m award from the Bloomberg Philanthropies' 2014 Mayor's Challenge. This bidding process seeks out "inspiring bold, replicable innovations developed by cities" (Bloomberg Philanthropies, undated A) and saw Kirklees sharing the stage with projects in Barcelona, Stockholm, Warsaw & Athens. Highlighting the specific problem they wanted to address in their bid, Kirklees wrote:

> "*Governments at all levels of the United Kingdom are grappling with the effects of austerity. Localities are being asked to deliver more resources to their citizens with less national support. Meanwhile, community and volunteer organizations have the will, enthusiasm, and desire to do more in their neighborhoods, but lack resources – such as buildings, tools and even specific skill sets. These resources are often present in the community, but not readily accessible to those who need them, when they need them*" (Bloomberg Philanthropies, undated B)

In order to make Comoodle self-sufficient once the award runs out, a number of avenues have been considered, including a franchising model to other cities; advertising; providing access to paid add-on services; and charging membership fees. However, to date no clear direction has been agreed, and with the financial pressures of austerity hitting hard, it is unlikely that this programme would be continued with internal funding, regardless of any outcomes achieved.

6.5.2 What opportunities exist for sharing platforms to deliver public services?

Attempting to identify opportunities for a sharing platform approach proved difficult. There are many avenues that may, on the surface, seem appropriate, but would need significant scrutiny in order to get off the ground, and this made it difficult for the participants to fully engage in the discussion. The most common suggestions were in Energy, and Transport, the latter likely stimulated by comments made in reference to Uber, and the former repeatedly referencing the approach taken in Nottingham – see table 6.5. Here, Robin Hood Energy was set up as the first Energy Services Company (ESCO) in the UK to be owned by a local authority. This approach, and the potential extension of it in terms of producing sustainable energy locally – in particular through rooftop solar on public buildings – was of interest, and was being considered by Directors (P18 and P21) in two authorities.

[37] Local tool libraries are usually run by community groups or the local authority, an example is the All Saints Action Network Tool Library in Wolverhampton - https://www.asan.org.uk/community/tool-library/.

Table 6.5: Most cited sharing opportunities

Opportunities	Sources
Amazon Model	4
Energy	4
Smart Cities	3
Data Collection	2
Insourcing	2
Transportation	2

Instead of outlining specific opportunities, participants focussed on the structure of any potential local authority platform. The common agreement in this respect was to eschew the oft-heard proclamations for the next Uber for X, or Airbnb for Y, and to instead consider an 'Amazon model' (P10, P11, P15, P16). This was due to the multiple interactions that a typical local authority has and the confusion that having a separate app for each interaction would lead to. Advocating for a single 'My*Local Authority*' app, one Director of IT (P10) outlined the reasons why people prefer this Amazon model:

> "*Because it's easy, it's a single point. You log in, one click, you go into the catalogue and you buy…Amazon is successful because you don't want a Waterstone's account. You don't want a JD Sports account. You don't want an M&S account. You don't want all these hundreds of accounts – or a Boots account. You just go into Amazon and buy it all through there*".

Whilst not widely discussed in terms of sharing platform opportunities, there was great potential for activity in the public health and social care sphere. The urgency of this was underlined by one participant who suggested that the devolution of public health responsibilities to local authorities is creating an even greater problem than the financial cuts associated with austerity:

> "*I think the greater problem is actually the demand on the health service…the actual knock on from the health service into local authorities has actually had a far greater impact in my view than austerity from government cuts*" (Director of Place, P18)

In terms of interventions, one participant suggested the need to start by identifying the wider benefits that greater local spending by the NHS would have, and described how they are working with the NHS to implement the same sort of local spending calculations:

> "*We can track and monitor and look at ways in which we can increase local spend and local supply chain. And that was anathema to the NHS, they had nothing like that. And I think they purchase on a national footprint…[and] that national footprint may give them lower costs…but in terms of local impact and social value locally, no benefits at all. So the NHS is one to*

crack…we're trying to, both of us, trying to drive the experience of the local government in the NHS locally" (Director of Policy, P08).

There was already a focus on public health and social care in some of the activities that were discussed, whilst other commentators have suggested that "healthcare sharing platforms will become the norm" (Gould, 2016). If this is approached in the right way, enabling a true calculation of the benefits to be made locally, then this could be of considerable value to local authorities.

6.5.3 Barriers & Enablers: The local authority as the platform

"*And that has to be the attraction for the local authority doesn't it, because if you're having year on year reduction in your resources, how do you deliver more for less? It's a major, major issue for local government nowadays especially as we are scaling back direct delivery of services and realizing that our role going forward will be more about facilitating and enabling rather than doing things ourselves*" (Director of Economy, P15).

Focussing on what drives and hinders the implementation of such approaches, typical barriers cited were data protection, lack of useful data available, and the low risk culture that is synonymous with much local government activity (see table 6.6).

Table 6.6: Most cited barriers to opportunities

Barriers	Sources
Austerity	9
Data Protection	8
Working Culture	8
Lack of Data	6
Lack of Expertise	6
Self-Sustaining	6
Community Capacity	5

In terms of enablers, generating your own income and/or cutting down key cost centres was regularly cited as a driving motivation, whilst supportive political parties/actors, related to the stability of local leadership, were the most cited enabler (see table 6.7):

"*There's a real consistency of leadership, belief of vision. And I think that permeates throughout the entire organization…I know that if I go with my latest bright idea to the Deputy Leader, I know pretty much what they'll say because they're consistent*" (Director of Operations, P22)

Table 6.7: Most cited enablers of activity

Enablers	Sources
Political Context	13
LA as Enabler	10
Austerity	9
Income Generation	6
Shared Vision	6
Improved Service	5

The focus on urban local authorities means that an overwhelming majority (78%) of those interviewed were in Labour controlled councils. However, the use of sharing platforms was not considered solely as a left leaning policy:

> "*Labour and Lib Dems [are] natural bed fellows and certainly…that cooperative history of the Labour party and the community politics and the Lib Dems is a pretty good fit in this sort of space. But I think Tories, I think, are quite understanding as well. Because they are quite an entrepreneurial notion and a self-help notion that fits*" (Director of Policy, P21)

However, and more interestingly, there wasn't solely a focus on the stability of city leaderships. In two of the more innovative local authorities, the fluidity of the local council was seen as an opportunity to try new ways of working[38]. This was considered a "tactical" necessity for political parties seeking to broaden their voter base and appeal to a majority of urban residents and businesses:

> "*We tend to operate tactically not strategically and that's partly because…it's really difficult for us in terms of long term thinking and consistent strategic approaches…when you go through the political parties quite as quickly as we do*" (Director of Policy, P09)

The benefit of this tactical approach was that it was able to align better with the requirements of the dynamic tech industry, where many of the innovative solutions to public service delivery, and the issues facing local authorities, lie:

> "*Nowadays the idea of a strategy being anything longer than a year given the tech advancements and the different ways in which things are going…don't tell me you're doing a ten-year strategy because that's bonkers. Everything is moving too quick for that*" (Director of Policy, P09)

The role of the community could not be downplayed. Without this input it was suggested that the delivery and long-term survival of such programmes would not be possible (P04, P11, P12). This was largely due to a lack of funding for such activity, particularly at the local level. As shown in Box 6.1 above, Comoodle received a rare award from an international philanthropy fund, but other projects

[38] One of these local authorities had three different minority party councils in the last three elections.

were less fortunate. A food sharing project highlighted by one Director of Policy (P21) was developed through the city's community challenge fund, and other Director's (P02, P12) pointed to their local area grants or innovation funds respectively – but the total amount of money available was comparatively small, and highly competitive. Share Peterborough was the only platform that received core funding locally, primarily through Opportunity Peterborough, the city's wholly owned economic development company, though this in turn had been secured as part of a broader project funded by InnovateUK.

What was surprising was how the financial pressures of austerity were seen not just as the anticipated barrier to activity, but also as a driver. This was linked to the idea of austerity being "the mother of invention" (Morphet, 2017), or certainly the mother of necessity, forcing local authorities to work differently:

> "*Partly because of financial necessity and pressures on us, I think [we are] much more willing to look at innovative solutions and think about different providers and different ways of that service being delivered*" (Director of Policy, P14)

> "*Our core grant from the government has been cut…in that time we've reduced our workforce…And in one sense whilst that's not without any pain or not without impacting upon the frontline delivery of services, nevertheless, we've pretty much minimized that impact. And in some ways I think what we've done is to take out the workforce in many of our areas and almost then work out how to manage afterwards…What we've done is to allow people to go, and we've done it through voluntary means mostly, and then worked out how then to redesign and redeliver our services. And we've successfully done that*" (Director of Finance, P04)

> "*Austerity is making local authorities have to think of things in a different way… because we can't cut our way out of this crisis. We have to grow our way, eventually, out of the crisis that we face*" (Director of Economy, P15)

Part of this different thinking was highlighted during the interviews in how the participants described the local authority's shifting role within the city. Almost half of the participants made reference to a move away from the local authority being seen as a paternalistic provider of all things, and to instead focus on its ability to act as an enabler of activity. Numerous phrases were employed to describe this idea, as can be seen in figure 6.3.



Figure 6.3: Words used to describe the 'enabling' role of the local authority. Size represents relative frequency.

Austerity was viewed as a major factor in the need for this shift in role, with one participant describing the need to renegotiate the New Labour-era 'social contract' and require greater involvement by local residents:

> "*The impacts of austerity mean that most of local government has to build a new relationship with its citizens and expects citizens to be more [involved]*" (Director of Economy, P11)

The drive for a more business-like or enterprising local authority (LGA, 2012), particularly since the Localism Act in 2011, could also be seen within these discussions. Amongst concerns about the inflexibility and restrictiveness of performance indicators and other managerial barriers to activity (Director of Operations, P22), one participant reframed local residents as customers:

> "*It's about making our customers as independent as they can and helping the community to be interdependent, so they're supporting each other*" (Director of IT, P13)

Whilst others wanted their local residents and businesses to have a clearer understanding of who is responsible for creativity and local innovation:

> "*The ideas in terms of the creativity or the innovation, they won't come from the council because that's not what the council's for. So the council's job is to say have a go then really, it's to be an enabler*" (Director of Policy, P09)

This enabling and facilitating role suggests that rather than simply attempting to employ sharing platform technologies in the delivery of their activities, local authorities themselves are becoming platforms, focusing on their ability to connect a private or third sector provider with the citizen-user-customer who may need that service. The focus is often on the economic necessity for doing this, rather than an ability to improve service quality, placing local authorities at risk of striving to become one of Srnicek's (2016) low-value, asset-stripping 'lean platforms'. Srnicek's (2016: 49) identification of lean platforms as those "attempting to reduce their ownership of assets to a minimum and to profit by reducing costs as much as possible" mirrors the strategies being employed by these local authorities under austerity.

Certainly, the perception from those responsible for delivery and local spending is that this is necessary for survival. However, the local authority as a lean platform would be the least able to add value, particularly social value or long-term financial value - compared to the other forms of platforms – advertising, cloud, industrial, or product. As was identified by Langley and Leyshon (2017: 25) above, the deliberate strategy for many of these start-up lean platforms is simply to be acquired by a more dominant platform, but who will acquire this public-sector platform? Without acquisition or market dominance the likely outcome is bankruptcy. The threat of this has been seen for the first time in nearly two decades in England with Northampton County Council's first (and second) issuing of a section 114 notice – which bans spending and is considered to be the local authority equivalent of bankruptcy (BBC, 2018a).

6.6 Delivering Economic Sustainability: Striving For Merit Goods

Similarly, of concern, and despite much rhetoric regarding the potential benefits of the sharing economy more broadly (Heinrichs, 2013), the users of platforms have still consistently been shown to be motived by utilitarian outcomes – reducing transaction costs in particular (Möhlmann, 2015; Tussyadiah, 2016). This is built in to the logic of platforms, being a significant factor in Bonchek and Choudary's (2013) idea of 'connection', or ease of use, described above. It is also a central aspect in attempts to transition to more economically sustainable cities, but with the goal of local government not solely measured by price, there needs to be some serious consideration in how platforms could, and should, be applied.

In their study of the navigation platform, Waze, van der Graaf and Ballon (2019: 371) underline how the individual utilitarian motivation to reduce travel time, is not always consistent with the wider priorities of a city authority: "an alternative route may be good on an individual level yet not for a residential street, or the efficacy of traffic movement as a whole". Much work has been dedicated to the use of sharing platforms with respect to transportation in cities (Shaheen, 2016; Ambrosino et al, 2016; Ballus-Armet et al, 2014; Martin et al, 2010), but the framework of Cohen and Kietzmann (2014) is particularly pertinent here. Their analysis of agency conflicts between city administrations and ridesharing platforms focussed heavily on the

need to align the priorities of the city with the right incentives to engage platforms on more than just utilitarian outcomes. This was framed as a pursuit of "merit business models for sustainability" and is based on the idea of merit goods, which they suggest are "seen by governments or society as important to provide due to the associated positive externalities…regardless of an individual's willingness or desire to pay" (Cohen and Kietzman, 2014: 291) - examples include healthcare, affordable housing, and education. It is of paramount importance to understand that no matter how much asset-stripping is done in the quest for an enterprising, lean local authority, merit goods cannot be made to turn a profit, nor should they. Whilst this study has explored, to a limited extent, the priorities of the local authorities in England and how they might be realized through sharing platforms, there has not been sufficient space to explore what safeguards need to be in place before the implementation of sharing platforms can be confidently rolled out.

6.7 Conclusion

This paper has sought to investigate how the platform or sharing economy extends beyonds its heartlands in private business and is now being utilised by local authorities in England as part of their response to austerity. Support for the use of sharing platforms in public service delivery is apparent across these interviews, with the usual caveats related to finding external funding and involving the community in delivery in order to make activity self-sufficient. The risk averse nature of the public-sector, along with concerns about data protection put barriers in the way of opportunities. While political support, either stable long-term or short-term tactical support, and a need to be more innovative, help to realize the implementation of such opportunities.

Despite the intention to focus on the what and how of the implementation of sharing platforms in English local authorities, the data from these interviews with Senior Directors clearly exposes a much deeper platformization process, that of the local authority itself. The pressure to maintain services under increasing financial pressure has seen a range of, what can more readily be described as, optimizing and rationalizing activity taking place. This drive for efficiency under the restrictions of austerity means that local authorities themselves have begun to echo the typology of the asset-stripping 'lean platform', raising questions as to whether this short-term survival strategy could damage long-term sustainability.

Two specific avenues for further research stand out. The first is based on the types of activity that were described in the interviews and the need for considerable community involvement to maintain them. This highlights a role that sharing platforms may play in engaging communities positively in helping to overcome the financial pressures inherent in austerity policy, but also how they help to reframe ideas like the Big Society as opportunities to fill the gap left by central funding.

Secondly, whilst a supportive political context was considered vital (it was the most common enabler discussed), it was not shown to be consistent, neither with

regards to the political party, nor the stability of that support. It was generally considered that a stable council would be favourable, but where this was demonstrably not the case a need to act “tactically not strategically” in order to build consensus and appeal outside of their traditional base, seemed to be helping to drive a desire to experiment with new ways of working. This points to further research into how political instability may breed a more innovative approach to public service delivery and social value.

With the era of austerity very arguably being reported as coming to an end (BBC, 2018b; Merrick, 2019), it could be claimed that there is less impetus for local authorities to find ways to deliver public services and social value under such tight financial pressures. However, as was outlined by one local authority, the ability for them to scale down delivery and redesign services so that service could be maintained was of vital importance. Considering austerity as a test of the economic sustainability of cities in the future, continuing to pursue innovative approaches to public service delivery and social value generation will be equally vital. During more economically stable times, the focus should be on ensuring that the process is targeted on improving service quality, rather than as a purely cost-cutting exercise. Local authorities, therefore, need to be able to fully account for the local impact of all decisions made i.e. the impact on local employment, business, health, social cohesion, and safety must be considered, not just the direct financial cost.

7
A MULTI-LEVEL PERSPECTIVE OF PUBLIC-SECTOR INNOVATION: CASE STUDIES OF ACCESS PLATFORMS IN TWO ENGLISH LOCAL AUTHORITIES

7 A MULTI-LEVEL PERSPECTIVE OF PUBLIC-SECTOR INNOVATION: CASE STUDIES OF ACCESS PLATFORMS IN TWO ENGLISH LOCAL AUTHORITIES

Phil Northall, School of Geography, University of Nottingham

7.1 Abstract

There is arguably still only limited attention paid to how innovation is developed in the public-sector, and in particular in the local authority. This is despite the fact that the local authority offers a number of unique characteristics – local influence; demonstrating the value of action; and supporting community approaches – that could help to nurture a technological transition. Using a multi-level perspective framework – an analytical tool used to understand system innovations – this paper presents two case studies of how access platforms were nurtured in two local authorities in England. Both won considerable external funding to develop their platforms and, despite differing social and environmental goals, went through very similar development processes and faced near identical challenges. Many of the challenges highlight the specific characteristics that make innovation, and long-term transitions, hard to nurture in the local authority, particularly under the current conditions of austerity. As a result, this paper makes the case for a centralised, but locally influenced, intermediary that can harness the beneficial characteristics and mitigate the negative ones.

7.2 Introduction

Following the global financial crisis of 2008, and the subsequent implementation of austerity policies by many central governments (Lowndes and Pratchett, 2012; Peck, 2012), local authorities in the UK, amongst other countries, have been continuing to struggle with the financial pressures placed upon them (Sleater, 2018; Zeffman and Davies, 2018). In the UK, the hardest hit of all government departments, the Ministry of Housing, Communities and Local Government (MHCLG) – formerly the Department for Communities and Local Government (DCLG) – has had to absorb cuts of over 50% to their core budget (Gray and Barford, 2018). In an attempt to overcome this cut in funding at the local level, some local authorities are exploring alternative ways to deliver public services and social value, and are also turning to ad hoc, and highly competitive, funding streams in order to finance these projects. This paper utilises the systems innovation framework of the multi-level perspective (Geels, 2002) to analyse the socio-technical factors of two case study authorities in England. This framework is applied to assess how innovation is developed within the public-sector under conditions of austerity and the likelihood that this may contribute to a technological transition. These authorities - Kirklees Metropolitan Borough Council in Yorkshire and Peterborough

City Council in Cambridgeshire – are both developing access platforms[39] to deliver public services and public value, with differing social and environmental aims. Despite these differing local priorities, both authorities developed very similar technology and faced very similar challenges. It is the contention of this paper that such parallel development, and the correspondingly competitive funding environment, is not an effective way for local authorities to develop these new approaches that may contribute to their longer term economic sustainability. The local authority regime also puts considerable barriers in the way of the successful diffusion of such innovation and new ways of working. Instead a central intermediary with a strong local authority influence - such as the Local Government Association - would be better placed to both manage the risks and also to harness economies of scale.

7.3 Local Authorities Under Austerity

In 2010, and following the 2008 financial crisis, the UK government announced "the deepest cuts to public spending in living memory" (Alan Johnson, Shadow Chancellor, quoted in Mulholland and Watt, 2010). This period of austerity spending measures (Lowndes and Pratchett, 2012), which arguably continues to the present day, saw a 51% reduction in the budget of the DCLG between 2010/11 and 2015/16 (IFS, 2015), which has been calculated as a 37% real-terms reduction in government funding to local authorities (NAO, 2014). This exacerbated historically uneven spending in the regions and nations of the UK, in which ring-fenced central grants provided limited freedom for local redress (Musson, 2010). Hastings et al (2015) highlight how a positive survival narrative or negative marginalisation framing is often applied to the shrinking budgets and opportunities of local authorities - the survival narrative emphasises the resilience and adaptive capacity of local government, accentuating how this crisis in funding could provide the space for radical innovations to "[put] community and civil society front and centre" (Bunt et al, 2010: 3). The marginalisation narrative is much more critical of the impact, with councils relegated to "residual players" only able to provide "ameliorative programmes" for the most vulnerable in the community (Stoker, 2012: 17). In outlining local authority management responses to "the worst financial settlement in living history", Hastings et al (2015: 606) suggest that the responses can be categorised into three 'headline strategies' of efficiency, retrenchment, or investment. These can be succinctly summarised as cost reduction, role reduction (residualisation), and need reduction (prevention). Of particular concern, was their conclusion that "the analysis clearly identified a shift from efficiency to retrenchment in order to close budget gaps" (Hastings et al, 2015: 616) and that "the capacity for efficiency savings within English local government was rapidly being exhausted" (ibid.).

[39] The term access platform follows earlier research (Northall 2017; 2019) to better understand the unique factors of the sharing economy, and the understanding of the sharing economy within local government. The ability to provide access to under-utilised assets via an intermediary platform was considered to be the primary value of the sharing economy, and the term access platform was conceived to more effectively convey this within the local government environment.

This conclusion is understandable given that for local authorities to be able to deliver an investment response, they need to have sufficient resources to be invested and the freedom with which to invest them:

> "*Councils have innovated, reimagined and changed the ways they work to deliver significant savings and efficiencies. But there is only so much that they can do in the face of large reductions in Government funding, increasing demand for their services and without the local discretion to do things differently*" (LGA, 2018: 5)

In order to secure additional resources, some local authorities are turning to highly competitive national and international funding streams, two case studies of which are highlighted in this paper. The criteria for securing such funding is often related to the newness and innovative nature of any proposal as it must stand out in a highly competitive environment. However, given the shrinking budgets and lack of local discretion highlighted, are local authorities the most appropriate location for nurturing innovation?

7.4 Public-Sector Innovation

There is a considerable history of research into innovation, with a particular focus on the development, adoption, and diffusion across private-sectors (Moore and Benbasat, 1991; Greenhalgh et al, 2004; Edwards et al, 2005). When the public-sector is considered it is more commonly in relation to institutional collaboration around the "triple helix of university-industry-government relations" (Etzkowitz and Leydesdorff, 2000: 109), or in supporting the development of innovation clusters (Maskell, 2001) as part of national policy on economic development (Schot and Steinmueller, 2018) or as regional geographies of agglomeration (Amin and Wilkinson, 1999; Porter, 2003) – though even here, too much public-sector involvement is seen as contributing negatively to an 'innovation gap' (Cooke, 2001). There is, however, considerably less research into the nurturing of innovation *within* the public-sector, and even less looking at the local level. When looking at this scale the focus is more often on the role of the citizens (Horne and Shirley, 2007) or local partners, such as the voluntary sector (Osborne, 1998), as co-producers and co-creators (Pestoff and Brandsen, 2007). Innovation in the local authority is often only considered in terms of the financialisation of the public-sector (Halbert and Attuyer, 2016) and pays far less attention to analysing the characteristics of the local authorities themselves and how those may help or hinder the development of innovation. This is surprising given that public-sector spending accounts for around 40% of GDP (OBR, 2019), and the vital role that the public-sector plays in leading and governing local communities (Benington 2000).

Hartley (2005) does provide an historical account of innovation in the public-sector, summarising the ways in which the public-sector incorporates potential innovations, from technical and administrative, to product, process and service

innovation. In doing so she distinguishes how local governance and public management has innovated itself from 'traditional public administration'; through a period of 'new public management', and on to 'networked governance' – see table 7.1. Each stage of innovation demonstrated shifts in context, population, needs and problems, strategy, and actors, representing a change in the key concept of governance from public goods, public choice, and public value respectively. These shifts highlighted how innovation moved from being large scale and national, to more organisational and local, with a corresponding shift in the role of the policy maker from commander, to commissioner, to leader and interpreter (2005: 29).

Table 7.1: Innovation and improvement in different conceptions of governance and public management (adapted from Hartley, 2005: 29)

	'Traditional' public administration	*'New' Public Management*	*Networked governance*
Innovation	Some large-scale, national and universal innovations	Innovations in organizational form more than content	Innovation at both central and local levels
Improvement	Large step-change improvements initially, but less capability for continuous improvement	Improvements in managerial processes and systems. Customer focus produces quality improvements in some services	Aiming for both transformational and continuous improvement in front-line services
Role of policy-makers	Commanders	Announcers / commissioners	Leaders and interpreters
Role of public managers	'Clerks and martyrs'	Efficiency and market maximizers	'Explorers'
Role of the population	Clients	Customers	Co-producers

The shifting role of actors at this level, as well as the abrupt shifts in their political ideologies, makes long term development of innovation difficult. Considering the 'power, politics, and leadership' of organisational learning and knowledge in public service organisations, Rashman et al (2009: 481) describe how there are both "formal (democratic) and informal politics, which may support or hinder organizational and inter-organizational learning", and which exert an "important influence on learning and innovation in the local environment" (ibid.).

Returning to Hartley, there is also a distinct difference in the definition of innovation in the private and public-sectors - private-sector innovation is often nurtured in "firms which are *not* market leaders" (Hartley, 2005: 31, emphasis in original), due to the lack of path dependency and rigid management structures. This contrasted with the entry requirements for the then Office of the Deputy Prime Minister's 'innovation forum', which only focussed on those local authorities ranked as good or better (ibid). This may suggest that the public-sector is unable or unwilling to accept failure and the organisational learning that comes from that (Cyert and March, 1963), which is associated with 'innovativeness' in other sectors (Leoncini, 2016).

There is also a difference in the desired outcomes for innovation. Hartley states that the drive for competitive advantage in the private-sector may negate the sharing of good practice. Citing Moore (1995), Hartley demonstrates that in the public-sector the goal is very much the opposite, with the aim to "achieve widespread improvements in governance and service performance, including efficiencies, in order to increase public value" (Hartley, 2005: 27). This often necessitates the sharing of good practice, and goes someway to explain why the public-sector innovation forum relies on the best performing members. This distinction (and interaction) between private-sector competitive environments and rigid public-sector best practice forums can be explored as part of a multi-level perspective.

7.5 A Multi-Level Perspective (MLP)

Demonstrating elements of evolutionary thinking, associated with the 'evolutionary turn' in economic geography (Boschma and Martin, 2007), the MLP lays out the endongenous factors of knowledge and system innovation that are central to an "autocatalytic process" of economic growth (Metcalfe et al, 2006: 9), providing a framework with which to explore the interaction of actors and their socio-technical environments. It is an analytic tool for identifying how technological transitions occur and is centred around a nested hierarchy of three levels, the niche, the regime, and the landscape (Geels, 2002) – see figure 7.1. The niche is a protective level, which, through a combination of activities such as subsidisation or unique cultural milieu, creates the space for experimentation that is synonymous with successful innovation. Regimes are the "structures constituted from a co-evolutionary accumulation and alignment of knowledge, investments, objects, infrastructures, values and norms that span the production-consumption divide" (Smith et al, 2010: 441). These material artefacts combine with institutional rules that are put into practice by the actors at this more stable level. Above this, the landscape is the most stable level and "is an external structure or context for interactions of actors" (Geels, 2002: 1260). Changes at this level "may put pressure on the regime, and create openings for new technologies" (Geels, 2002: 1261). These changes include environmental and social movements, the transition of which are targeted by those actors seeking stronger sustainability and resilience of systems.

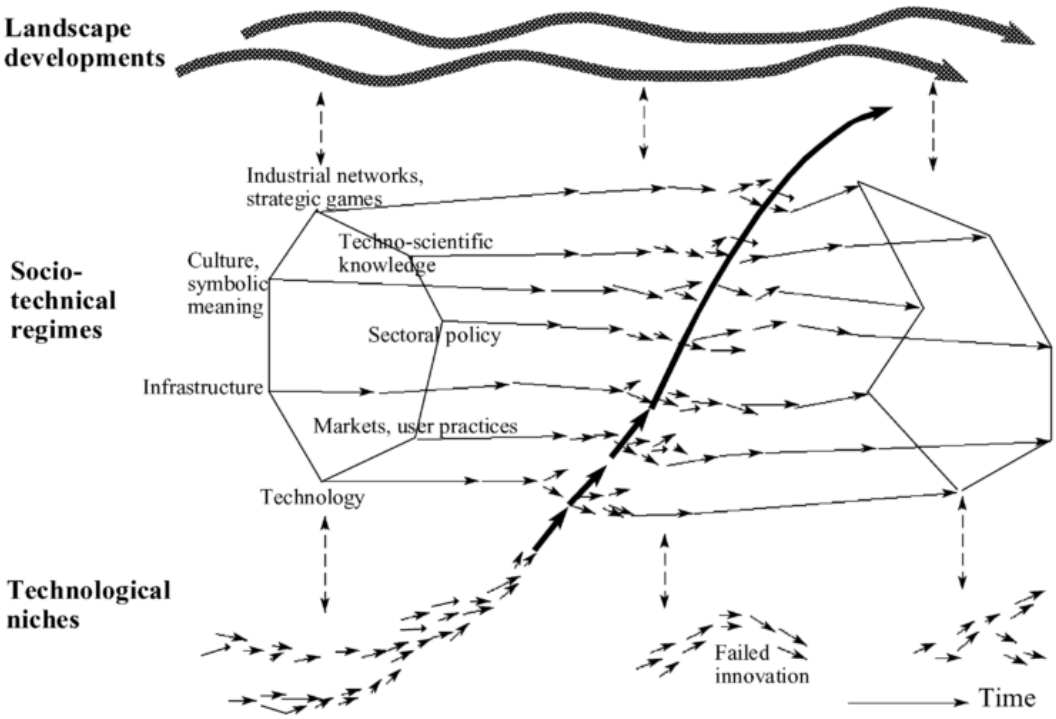


Figure 7.1: A dynamic multi-level perspective on technological transitions (Geels, 2002: 1623)

The MLP is a socio-technical configuration and interaction between the levels helps to nurture and normalise new ways of doing things. It helps to distinguish how innovation initiated by niche actors evolves with, and possibly disrupts, structures and institutions at the regime level, interrupting stable and long-held cultural/behavioural landscapes, helping them to transition to a new direction:

> "*Regimes tend to produce 'normal' innovation patterns, whilst 'revolutionary' change originates in 'niches'. The implication is that the quality of incremental innovations subsequently generated within a new regime will be radically different to those under the preceding regime*" (Smith et al, 2010: 440).

The MLP is most readily associated with the work of Frank W Geels (2002; 2010) and contributes to a vast literature exploring the helical unfolding of socio-technical reproduction between the agent and the structure – where the agent is both shaped and shapes their structures. This intertwining of agent and structure is explored in the structuration and morphogenetic theories of Giddens (1984) and Archer (1995) respectively. A key debate between these two theories is in relation to the level of distinction ascribed to the agent and the structure. Giddens (1976: 75) asserts that the structure is based on internalised rules, whereby a "knowledgeable agent" can voluntarily follow those rules, or apply them differently to create a new structure. Archer (1982: 464) suggests that this "inflates the degrees of freedom for action", and that the interaction between agent and structure should instead be followed in temporal sequence with the actions of one agent shifting the structure for the next. In doing so the analyst is able to "maintain a distinction between the individual and social reality" (King, 2010: 254).

Addressing specific social theory ontologies and their position to the MLP, Geels (2010) discusses structuration theory, focusing on the "knowledgeable agents" within Gidden's theory (Geels, 2010: 504). In doing so he inadvertently strikes at "the unresolved voluntarism–determinism dyad in Giddens work" (King, 2010: 254), and the conflation of structure and agency as an indistinguishable entity. Highlighting the interplay of the niche actor with the socio-technical structure of the regime and landscape. Whilst a structural path dependence is a considerable factor in the success or failure of innovations in the niche, the ability for individual niche actors to radically disrupt the regime, and ultimately transition the landscape, demonstrates how "'revolutionary' change [can originate] in 'niches'" (Smith et al, 2010: 440).

The MLP is used extensively in sustainability studies (Coenen et al, 2012) particularly in considering the management of cities' critical infrastructures (Hodson and Marvin, 2010), and how transitions to more sustainable systems for food (Bui et al, 2016), water (Nastar, 2014), energy (Fudge et al, 2016), and transport (Geels, 2012) can be achieved. In exploring this potential, Hodson and Marvin (2010: 478) note the coming together at the local level of "coalitions of interest", who "are developing a more strategic orientation towards critical questions about their [cities] future resource requirements and infrastructural implication". They question the lack of focus on the role of cities given the context of increasing urbanisation and the growing importance of cities as spaces of both disproportionate economic growth and environmental emissions (2010: 480), and recommend the creation of an intermediary body that can help to bring together the urban governance regime and socio-technical regime. This intermediary could combine actors and social interests from both sides in order to deliver on a shared vision, "to intervene in a variety of ways in existing systems of producing and consuming resources" (2010: 482).

It then becomes necessary to consider where the local authority – the unit of analysis for this paper – may sit within this framework. The purpose is to look at how the local authorities in the case studies have developed and integrated new platform technologies to achieve specific social and environmental goals. They would therefore be conceptualised as niche actors, seeking to nurture their innovations and to interact them with the socio-technical configuration of the regime. Where the difficulty lies, is in the fact that local authorities cannot be considered as one monolithic actor, and are in fact part of the existing regime. This may help to support the development of their platforms, being able to more quickly draw upon the stability from the regime and to experiment by co-evolving new methods of service delivery. This would be similar to the operation of research and development arms of large incumbent private firms.

Investigating "how the increased need for local governance of energy has opened up niche level possibilities for local authorities to exert influence in the governing regime in the UK", Fudge et al (2016: 7) lay out three socio-technical factors that make the local authority an attractive niche actor, these are:

1) **Local political influence** - "The role of local authorities is a vital element of this kind of 'localism', where their formal political status and existing role as local service providers can potentially 'galvanise' a more community based approach" (ibid.).
2) **Engaging the public** - "Action…will only happen if people see the link between small, individual actions and the global problem…and this is where the involvement of local authorities is crucial – especially in terms of emphasizing the relevance of collective endeavour" (ibid.)
3) **Technology and infrastructure** - Encouraging national policies to adapt to community projects to support their growth, and thereby reshaping the regime.

Combining these factors in the energy market could shift the understanding of "a relationship that has largely been based to date upon a pure commodity transaction between sellers and users" to a relationship of "formal and informal partnerships among private companies (e.g. utilities and housing associations), public-sector organizations (e.g. local authorities) and citizens" (2016: 8). This renewed relationship with both niche level partners and the broader regime infrastructures could open up windows of opportunity (Kingdon, 1984) in the political landscape which would enable a more systematic and long-term transition. For this to occur in the energy sector specifically – though it may similarly be applied to many urban critical infrastructures and policy – Fudge et al (2016: 14) reiterate the view of Roberts (2010), who contends that:

> "*For local authorities per se to become more influential players in governing and influencing energy policy in the UK, such a role will derive principally from developing and enhancing the services that they already deliver; the strategic roles they currently play; and the regulatory influence they have to enforce national standards and directives*" (Fudge et al, 2016: 14)

7.6 Using Access Platforms To Deliver Economic Sustainability: Two Case Studies

In order to apply the MLP to assess how innovation is developed within the public-sector under conditions of austerity and the likelihood that this may contribute to a technological transition, two case studies were chosen:

1. Comoodle (**www.comoodle.com** - Kirklees, Yorkshire) is an asset-sharing website allowing local groups, and anyone providing demonstrable social value to the community, to access under-utilised resources, such as leisure equipment, vans, or event spaces, for free.
2. Share Peterborough (**www.sharepeterborough.com** - Peterborough, Cambridgeshire) connects local businesses to other businesses or community organisations who may be able to make use of unwanted items, such as second hand office furniture or industrial outputs, or under-utilised

office space, with the aim to boost the local supply chain and to divert waste from landfill.

The selection of these two case studies follows research into the use of sharing economy principles and platforms across eighteen local authorities in England (Northall, 2019 – Chapter 6 in this thesis). In this research the sharing economy is conceptualised as "a potential new pathway to sustainability" (Heinrichs, 2013), and in particular as a way to contribute to the economic sustainability of city administrations. As outlined above, the impact of austerity policies is placing considerable strain on the financial resources of local authorities in England, with more expected to be done with less. It is the hypothesis of this paper that if local authorities are able to nurture and integrate sharing economy platforms into the delivery of their public services, they might be able to go some way to achieving this, and, in the longer term, can deliver more economically stable cities.

There is already a considerable, and increasing, body of academic literature on the sharing economy which contributes to a conceptual broadening of the core principles, and can lead to almost any digital, on-demand practice being placed under the sharing economy banner (Finck and Ranchordás, 2016: 1353). Following earlier research on the sharing economy to pin down the key processes of value in delivering this potential pathway to sustainability (Northall, 2017 – Chapter 5 in this thesis), providing a platform that allows access to under-utilised resources was identified to be of most significance, with an ability to scale-up and take advantage of network effects key to sustaining activity. This led to the preferred use of the term access platform, to more effectively convey this process.

The two case studies were chosen because they most clearly embodied the principle of access to under-utilised resources and were the most sophisticated of the platforms identified during the previous research (Northall, 2019 – Chapter 6 in this thesis). Their sophistication is largely due to both having secured substantial external funding – €1m from Bloomberg Philanthropies for Comoodle, and part of a £3m InnovateUK project for Share Peterborough. This provided them with specialist technology development and dedicated engagement teams within their authority. Both established online access platforms, though their goals and focus were different. Comoodle prioritised the development of social value amongst community members and organisations, whilst Share Peterborough had more environmental aims and targeted the resource flows of their local businesses.

Table 7.2: List of coding nodes adapted from multi-level perspective criteria in Geels (2002)

Niche	Actors
	Business Model
	Critical Mass
	Governance
	Human Resource
	Promotion
	Resources-Funding
	Skills-Knowledge
	Technology
	Users
Regime	Actors
	Austerity
	Data-Privacy
	Infrastructure
	Markets
	Motivations
	Networking
	Policy-Regulation
	Politics
	Sector
	Priorities-Goals
Landscape	Culture
Outcomes	Challenges
	Comoodle
	Metroflows
	Platformisation
	Self Sustaining
	Share Peterborough
	Sustainability

Following semi-structured interviews with senior project staff from both platforms in Dec 2017, they were revisited for follow up interviews in May/June 2019. Interviews were recorded, transcribed and added to Nvivo, where they were coded against niche, regime, and landscape nodes, derived from Geels (2002) and shown in table 7.2. Additional quotes and statistics on user numbers and activity were added from documents provided by the participants, and from their respective platform websites. Box 7.1 and box 7.2 highlight the key features of each platform, with the respective objectives, successes, challenges, and future plans outlined below each box. Following this is a joint analysis of their development process and challenges. The platforms have been analysed together due to the many similarities that were encountered.

Box 7.1	*Comoodle*
Local Authority	Metropolitan Borough of Kirklees
Region	Yorkshire
Year Established	2015
Funder	Bloomberg Philanthropies
Funding	€1 million (over four years)
Website	**www.comoodle.com**
Goal	To provide social value, monetary savings, and to build trust amongst the residents, community organisations and businesses of Kirklees, by facilitating sharing of resources.
Partners	YooMee (tech development); Third Sector Leaders Kirklees (community engagement and communications)
Registered Users	1174 (at Oct 2018)
Trades	1448 (at Feb 2019)

Comoodle is an access platform with the aim to "be the first city to apply the sharing economy concept to the resources of the state, making our assets available for community projects that benefit the local area; encouraging interaction between community organisations and leveraging contributions from local businesses" ('vision' from proposal document). Comoodle started off as a blog website and utilised request forms in order to facilitate access to items with, and between, its community members. When seeking to borrow an item four questions were asked:

1. What's your activity mainly about?
2. How many people will benefit?
3. How much difference will it make to people's lives?
4. How important is the thing you are requesting to the activity you are proposing?

By asking these questions Comoodle staff, or community custodians of assets, would assess the social value that access to the item would bring to the community of Kirklees. If it was deemed to be of social value, then the asset would be provided free of charge. From December 2016, Comoodle became an online platform, with a bespoke website developed by local social enterprise, Yoomee. The online platform was designed to make access easier and to help collect evidence against their aims of delivering social value, providing monetary savings, and building trust.

User number growth was consistent and surpassed all initial targets. The platform has supported over 500 groups working on a range of issues from disabled young people to isolated adults with mental health problems. The items shared allowed activities to take place for over 65,000 participants, and 40% of the trades were for activities that would not have gone ahead without the items provided. Examples of activity include one of the platform's "hardcore Comoodlers", a community centre, which shared their two diesel generators. These generators were shared 16 times, saving the local community sector between £800 and £1600, and enabled events that described the generator as essential or very important for the running for the event. These included three 'More in Common' events - a Pride in the Park event,

an inclusive sport event for disabled young people, and an Eid celebration - and seven traditional community fairs. The contribution this made to community spirit – a priority for the platform – was highlighted, with each event reporting a reach of over 250 people, totalling 4000 people in one summer of activity. Other notable activities included a 'Fit and Fed' programme in the summer holidays – this helped children at risk of holiday hunger, isolation, and inactivity stay active and eat healthily, and used Comoodle to borrow all the toys and resources needed, such as Kwik nets, football goals, indoor cricket and targets. And the sharing of equipment for football, table tennis, and karaoke as part of the Youth Intervention Team's programme to help divert young people away from gangs, anti-social behaviour and crime.

Sustaining the platform beyond the initial funding period has been the most significant challenge. As with private-sector access platforms, Comoodle has explored many different avenues, with the preferred option being to franchise 'replications' of the website to other local authorities. There was some success with this model with replications created for York City Council and the London Borough of Camden, and strong interest from the London Borough of Hammersmith & Fulham. However, the income generated through these franchises was not enough to maintain a dedicated team. Kirklees benefitted from having a large number of items given to them by the closure of youth and leisure services in the Council. This enabled them to have an attractive array of items to be shared. However, whilst many community members and organisations made regular use of these items, Comoodle struggled to encourage greater levels of sharing between members. Even when items where passed on to groups to act as 'custodians', there was still low numbers of intra-community sharing.

With Comoodle unable to generate enough revenue to support itself, other avenues to continue it beyond 2019 were considered. Initially funding was going to be provided internally from Kirklees Council. This was to be used as match funding for an EU Interreg bid with a number of other European authorities. However, both the Kirklees and Interreg funds fell through. This leaves Comoodle without any dedicated staff, with the work updating and promoting the platform being added to the responsibilities of the Council's Third Sector Team. Currently, the plan is to gift the platform to a partnership between the local community consortium, Third Sector Leaders Kirklees, and Yoomee. However, Third Sector Leaders are still reticent to accept this gift until they are sure that it will not be a drain on their limited resources.

Box 7.2	*Share Peterborough*
Local Authority	Peterborough City Council (unitary authority)
Region	East of England
Year Established	2016
Funder	InnovateUK
Funding	Part of a £3 million Future Cities demonstrator project
Website	**www.sharepeterborough.com**
Goal	Targeting local businesses and attempting to boost the local supply chain, Share Peterborough is an online sharing community. Taking a circular economy approach the aims are to help save businesses money, develop their local networks, and help divert materials away from landfill.
Partners	Opportunity Peterborough; Folk Labs (tech development)
Registered Organisations	325
Listings	346

Through the Smart Businesses strand of their Future Cities project, Opportunity Peterborough identified that many businesses in Peterborough weren't aware of what other local businesses were doing, and that many of them were going abroad for suppliers and items that they could procure locally. To remedy this, Opportunity Peterborough began running 'Swap-it' events. These events brought local businesses together to discuss their resource needs and surpluses, and began the process of matching them up. Taking this a step further, the Share Peterborough website was launched in 2016. This allowed anyone to register for free and to list resources under three headings – People (for skills), Products (for items), and Places (for work/event spaces). Impact was measured against weight diverted from landfill; money saved; and time saved. In 2018, their Metroflows prototype was trialled. This platform went further by analysing a user's listed inputs and outputs and attempting to automatically match them with other users.

To date Share Peterborough has diverted 220kg from landfill, saved users £2,141 and 23.5 hours. The low impact numbers are largely down to the difficulty in getting users to log their successful shares. Despite the process being as streamlined and simple as possible, many users would complete their transactions offline, once initial contact had been made. This made accurate accounting of impact very difficult. There are also 77 'success stories' logged by users, outlining a number of the shares that have taken place between local businesses and organisations. Examples of this activity are largely related to the sharing of office equipment or supplies, and much of that activity involves sharing from Peterborough City Council or Opportunity Peterborough. Some of the limited 'success stories' are accompanied by an outline of the impacts related to weight of products saved from landfill, time saved, or costs saved by sharing and contributing to the overall figures above (see figure 7.2).

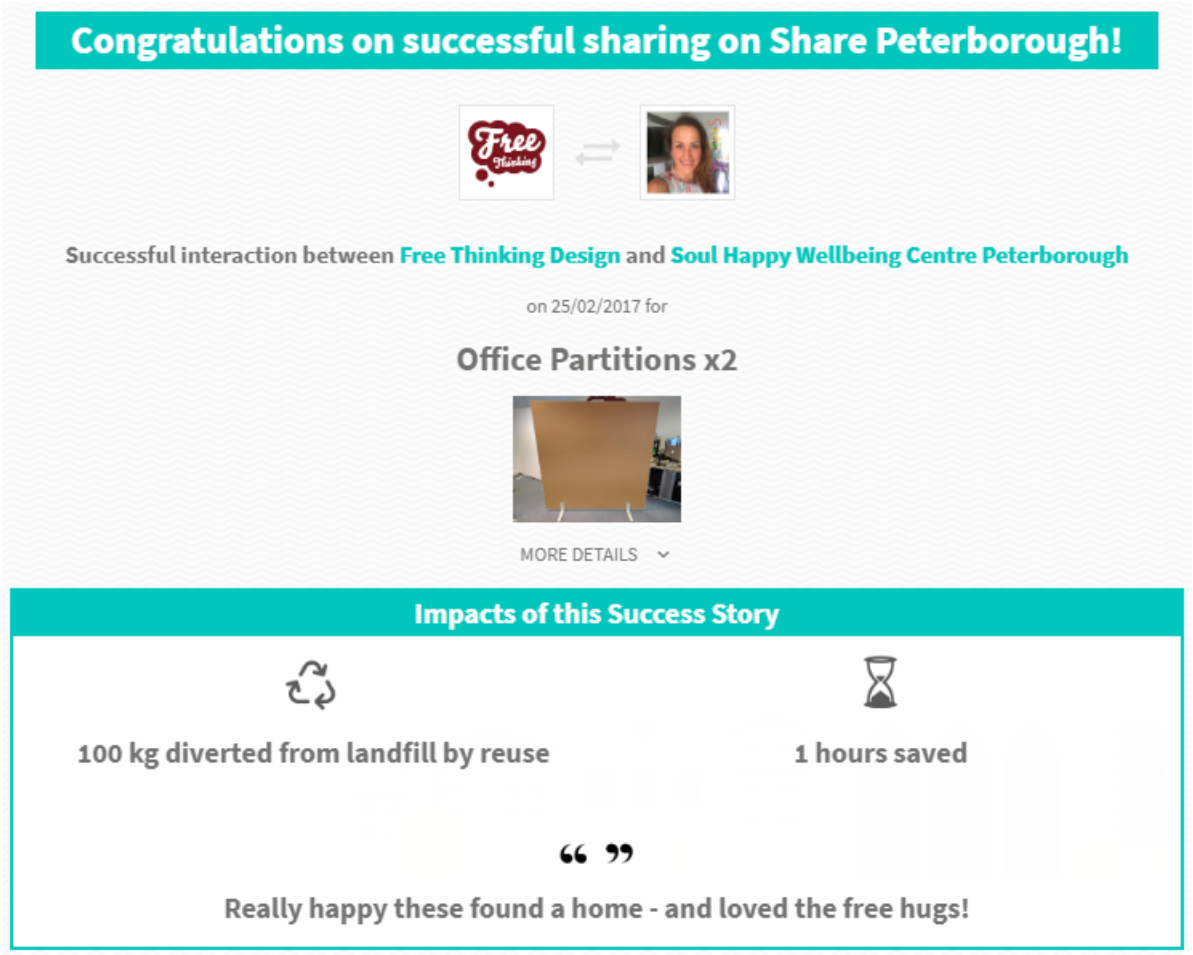


Figure 7.2 A success story on Share Peterborough highlighting impacts of the share

Examples of other inter-community sharing include a local business providing books for a local school, wheelchair ramps shared between two faith based organisations, and compost bins being provided by an environmental organisation to a local business.

The Metroflows trial was of great interest to Viridor, a national recycling, renewable energy and waste management company, who were keen to use the product internally to match up their various flows of resources. Despite being highly regarded, a number of challenges emerged with the Metroflows platform, in particular how to maintain privacy and protect the secrecy of a business's material flows. A lack of funding to extend the trial beyond the prototype stage meant that these issues couldn't be addressed and opportunities, such as the one with Viridor, could not be explored. Finding a way to generate income in order to cover the costs of the platform was the main challenge. A number of options were considered, from membership fees; posting or advertising of paid services; and sponsorship; to handing the platform over to businesses to run it for themselves; or offering the service to other local authorities for a fee.

With the initial InnovateUK money gone there is no longer a dedicated team to drive Share Peterborough and the responsibility for the platform has been added to the remit of the broader Environment, Transport and Future City Team. The

addition of sector specific groups and networks was an attempt to encourage local businesses to take ownership of their group and drive activity, but the results were very limited. The formation of the Cambridgeshire Combined Authority was also seen as an opportunity for Share Peterborough to be pitched as a way for them to make some quick environmental wins. The renewed focus on the environment through recent declarations of local level 'climate emergencies' was hoped to make Share Peterborough more attractive in this regard, but the opportunity has not yet been taken up.

7.7 Developmental Similarities

7.7.1 Technology and funding

Both platforms received substantial external funding to develop their platforms – Comoodle received €1 million, and Share Peterborough was part of a £3 million project. Both received their funding having been successful in highly competitive international and national funding competitions respectively – Kirklees were chosen alongside Barcelona, Athens, Stockholm, and Warsaw in the Bloomberg Philanthropies European Mayor's Challenge (Bloomberg Philanthropies, 2014), whilst Peterborough won funding from InnovateUK alongside Glasgow, Bristol, and London (Saraf, 2015).

Both platforms wanted to provide access to under-utilised or unwanted assets – though one for social value with community members, and the other for environmental gains with businesses – and began their journey with much simpler approaches – Comoodle was a blog site with request forms, and Share Peterborough ran 'swap-it' events. The initial appetite they found led them both to develop similar online platforms, and to target three types of assets – physical items, the skills of people, and spare office and event spaces – what Comoodle dubbed Stuff, Skills, and Spaces, and Share Peterborough labelled Products, People, and Places.

7.7.2 Human resources

Despite establishing a much more streamlined process with their online platforms, both still emphasised the need for constant human resource, whether that was on the tech side, testing, upgrading the user experience, and fixing bugs, or on the community engagement side building brand awareness, explaining the new concept of sharing, or hand-holding users through the process:

> "*I think it does need definitely people on the ground and it almost needs people going through the site, emailing, calling businesses, see how they are getting on using it, and needs kind of a people presence at networking events to remind businesses about it*" (Share Peterborough)

> "*Because there's nobody there now pushing CM, and reminding people, and pitching, and going to community events and giving out lanyards or leaflets or whatever else we did…I think it will rapidly wither, and is rapidly withering*" (Comoodle)

"*I think we really struggled to get people to understand the concept of borrowing things*" (Comoodle)

7.7.3 Marketing and promotion

The human resources available also had a significant impact on marketing, with the value of face-to-face engagement again highlighted strongly by both platforms:

"*You'd think online marketing like paid-for Twitter and Facebook campaigns to be really successful because it's online, but we haven't really found them to be that great. We've found that actually going to business network events and talking to people about it has been the best way to get people using it, which is more time-consuming, but it's what we've found has worked*" (Share Peterborough).

"*We had commissioned some marketing work from a professional firm…and they were just very mainstream, sort of writing copy, getting it published in Sainsbury's magazine that nobody reads, but not really doing anything on the streets or anything creative, or ... they weren't really very good at engagement they basically like a classic advertising firm, just producing copy and hoping people pick it up*" (Comoodle)

7.8 Shared Challenges

7.8.1 Sustaining the platform beyond initial funding

The main challenge for both platforms was finding a reliable way to keep the platform going beyond the initial funding period, and both focussed on licencing their platform to other local authorities:

"*We were still looking in to whether other councils…we could licence it to other councils, or even set up other areas or districts, almost as a group on the platform. And whether we could encourage different areas to use it almost as say a Cambridge group and then a Peterborough group*" (Share Peterborough)

Despite the tightened financial budgets in local government, Comoodle had been successful in securing money from the local authority to cover some of the running costs of the platform. This was to be used as match funding against a promising EU Interreg funding bid with a number of cities across Europe. However, both the original funding agreement and EU proposal fell through. Comoodle highlight the seemingly paradoxical curse of having a large external funder in this respect:

"*It's one of the problems of having a large external funder, that their money runs out and then, you've been 100% dependent on one funder, so even the authority hadn't had to spend a bean on it, we'd been gifted a million quid from nowhere. So there was no budget lying in the council which meant they were already putting in a hundred grand a year, so you know I could say in*

year four the American money has disappeared but can I still have your hundred grand, they'd never put in anything, so for me to get anything out of them was a fresh request" (Comoodle)

The self-sustaining challenge is certainly not limited to the public-sector, with over half (57%) of new firms in the UK unable to sustain their business beyond the first five years (ONS, 2017). However, finding a model that enables the continuation of a free-to-user service does seem to be a more common challenge for access platforms and for those industries where there is less focus on monetary value:

"*One of the best ones was a [platform] in Amsterdam…as I understand it, and I did meet him a couple of times in Amsterdam, was losing so much money on that that he's basically had to wrap it up completely. Because although he could get some usage he couldn't get people to pay for that usage…the sharing economy will probably work best for your hardcore, commercial capitalist-type arrangements, not for people being lovely and friendly and sharing cos the motivation's just not…it's different!"* (Comoodle)

7.8.2 Competing/comparison with incumbent commercial platforms

Operating in this less commercial space still brings direct competition/comparisons with these "commercial capitalist-type arrangements". This is particularly the case with regard to the technology employed, with many users expecting a comparable experience or convenience:

"*[Commercial platforms are] also very well designed, and even the tiniest detail they will have armies of people working on new button designs, or layout designs, or wizards for you know…they can invest heavily…and people almost expect that quality of platform performance that you see in the better platforms, you know Uber's quite a beautiful thing to use… they've invested heavily in their cutting edge platform design, as are Airbnb and Ebay. And that's hard, even with the budget that we had, to match that. But I don't think we did too badly on the product design but you've still got to get…it doesn't matter how good the product is, you've got to get people to it*" (Comoodle)

"*It's still a bit clunky the site. I think we're so used to these really swish platforms and using apple products that are so intuitive. We're just used to this very high-performance level. And the site was still a little bit clunky and wasn't as quick and easy to use as it could be. But we knew that, but we knew that the amount of further investment it would need to get it to a more slick state was money that we didn't have*" (Share Peterborough)

"*It seems as soon as anybody gets anywhere near critical mass the big boys just buy them out. And they'll either incorporate their technology or their territory into their products, or they'll put it on ice and just keep it out the way. And I think on the community field where you've not got the profits driving it, and the cash saving for the buyers and the profits for the sellers, trying to actually get that narrative across to people about why it's important,*

and keep it fresh and keep it…it's just going to be a massive challenge for anybody out there. And I'm not aware of anybody who's succeeded" (Comoodle)

7.8.3 Difficulty measuring impact or selling the social or environmental value
In order to sell the platforms to other authorities it was vital for them to be able to sell the social and environmental returns that could be expected. Setting relevant targets and understanding what level of critical mass was needed proved difficult, which made it harder to sell the platform to others:

"*When we got these new metrics, I have a feeling what we were thinking of is we'll see how the metrics go for the first few months that it was all up and running, and then we'll set targets. Cause we weren't really sure how much for example, how many kilograms [of waste diverted from landfill] we would want, how much would be achievable, if that makes sense? Cos we weren't really sure, on the average transaction, what the weight would be, how much that would equate to in financial terms for businesses*" (Share Peterborough)

"*But one of the reasons we wanted to do that kind of impact measurement was firstly the businesses, to see whether businesses - if we tracked the impact and the benefits to them the platform could have – whether they'd pay per transactions or when they sign up they'd be willing to pay a small fee. But then also the impact measurement, if we could show say the impact and the benefits it's having to businesses in Peterborough and the economy and social benefits, then that would support us trying to sell it to other councils as well*" (Share Peterborough)

"*We knew that the platform had to get to what people call critical mass, but we didn't really know what critical mass is*" (Comoodle)

7.8.4 Lack of local buy in and no investment from host authority
The difficulty of trying to sell these platforms to other authorities was exacerbated by the fact that neither of the host authorities were willing to spend money on their own platform:

"*I knew it was going to be difficult to get Camden and York to refresh and pay if Kirklees weren't even paying themselves. Cos that's not fair is it?*" (Comoodle)

"*Peterborough City Council were facing major budgetary cuts, so at the time it was my understanding that the council didn't really have any spare cash to put into it*" (Share Peterborough)

7.8.5 Shifting political and senior level support
Both platforms received substantial backing from senior leaders at the outset, notably in Kirklees where their former council leader was heavily involved with the initial concept:

"*The previous leader David Sheard, who was leader of the council, he understood it and realised we'd always have to pay for it. As did Graham Turner [council cabinet member], they realised we were basically creating a new service. But they also realised that why we would pay for it or continue to invest in it was because although we might have to pay for the infrastructure, the savings and benefit to the community outweighed the cost of the infrastructure*" (Comoodle)

However, this support shifted as funding ran out and it became increasingly clear that local money would be needed to keep the platforms running. This was made more difficult by the budgetary pressures imposed by austerity and the need to prioritise key services:

"*When the Smart City programme initially got in place and we got the InnovateUK funding, and then the circular economy programme evolved, I think there was a lot of political support for it. And I think, I wouldn't say support diminished, probably interest got diverted when there were budgetary cuts and political focus got diverted to other issues*" (Share Peterborough)

"*But when they faced budgetary cuts and it was a choice between keeping that [Electronics Recycling Facility] open, which wasn't financially self-sustaining, and between adult and social care, it was really very difficult keeping the recycling centre open and not putting that money into social care and not be able to fund all the services that we have*" (Share Peterborough)

The importance of individuals and senior level understanding and support must also be highlighted. When their council leader was replaced in 2016, Kirklees underwent a major review of staff and departments. This removed direct lines of reporting to senior authority staff and introduced new senior leaders with very different priorities and political agendas:

"*After that point I didn't have any leadership team that I could directly access, I was in a service with a head of service who was OK, but not massively passionate about my project cos it didn't really…her work was really all about community safety and we didn't really fit that. And I reported to a director who was given 300 other things to do and never got her head round it and never had a sensible conversation with me ever about it. So whereas I previously got access to a senior director, I got this sort of in between director who never took it seriously*" (Comoodle)

7.8.6 Loss of dedicated teams and responsibility passed to broader departments
With funding running out, licensing income streams not very strong, and a shift of senior support away from the platforms, inevitable decisions had to be made for both platforms. The senior project officers were both forced to leave their respective platforms and the responsibility was passed to broader departments – The Third Sector Team took on the platform in Kirklees, whilst the Transport,

Environment & Future City team took it in Peterborough. The difficulty with this is that the platforms needed quick responses to be able to keep them operating effectively:

> "*This is just something else that's landed on his desk that he never wanted to do, so he doesn't prioritise it…there's got to be one person who knows that is their job, to look after it, make sure it works, do the liaison, do the Twitter feed, the Facebook updates, and things like that, just you know, keep it ticking along, and be Mr Helpful or Mrs Helpful*" (Comoodle)

> "*The person who replaced me, I don't think, for various reasons, Share Peterborough was part of their role…I think for Share Peterborough to really be successful it needs either one person dedicated to it, or a team actually working together putting part of their time towards it to really drive it forward*" (Share Peterborough)

7.8.7 Potential transfer of ownership to the community

Comoodle are actively pursuing the opportunity to gift their platform to a partnership involving the tech development social enterprise, YooMee, and the local third sector infrastructure body, Third Sector Leaders Kirklees (TSLK). However, discussions in this vein have been difficult. Many are still unsure about the idea of borrowing to help run their organisations, and as such many members of TSLK have expressed concern that the 'gift' could become more of a burden:

> "*We'd tried to hand it over to a collaboration of our local council for voluntary service [TSLK] and YooMee….so I was hoping that it would basically be taken over of a new social enterprise, but a social enterprise that was made up of a partnership of existing players. And that's what I was trying to do right up to the 11th hour…and sadly the voluntary sector people who - they're just not entrepreneurs - they're very cautious, slow, wanting to go back and forth in meetings and check with their membership*" (Comoodle)

7.8.8 Emphasis on larger geographical scale/critical mass

In considering how the platforms could be reinvigorated, both point to the potential of the recently formed combined authorities, and at bigger geographical areas such as the Greater London authorities and the Northern Powerhouse[40].

> "*The combined authority were looking at making some quick wins and this was one of them that we thought from an environmental perspective they could push*" (Share Peterborough)

[40] The Northern Powerhouse brings together the eleven Local Enterprise Partnerships (LEPs) in the North of England to boost economic growth and to realise, "the government's vision for a super-connected, globally-competitive northern economy with a flourishing private sector, a highly-skilled population, and world-renowned civic and business leadership" - https://northernpowerhouse.gov.uk/about/

> "*The obvious way for us to solve it up here would be through our combined authorities, or Leeds city region or what's now Northern Powerhouse…which is why now I think its best chance is in London, because if London authorities can come together and…start to buy it, then you could have twenty authorities all next to each other, all making it go live, and that starts to make it more viable again. And it reduces your fixed costs and it means you can have dedicated comms programmes and adverts and other things like that. But it needs that level of ambition and confidence*" (Comoodle)

At the time of writing neither the transfer of ownership to the community partnership, nor the opportunities to make quick wins with the Cambridgeshire Combined authority had taken place. Both platforms are currently languishing in startlingly similar positions, under the broadening remit of large departments with little passion for the concept, few resources to maintain the platforms, and without a dedicated officer to drive activity.

7.9 What Can Be Learned From These Case Studies?

The local authority is, in many respects, well suited to the task of nurturing innovation. It benefits from a wealth of frontline staff, engaging directly with users, who are potential co-producers, and between them provide the necessary "bottom up" and "sideways-in" opportunities where innovations most typically occur (Hartley, 2005: 32). It can exert local political influence in order to engage the public, and can influence national policy to encourage support for community based technology and infrastructure (Fudge et al, 2016). But despite this natural fit, and considering the challenging and overlapping experiences of the two case study platforms, it seems as though the rigid regime configuration of local authorities makes it difficult for even 'normal innovation' to succeed in making an incremental transition, let alone being able to fully integrate a more 'revolutionary' one (Smith, 2010). The case studies show a reliance on innovative individuals operating within services and departments that "don't get it", "don't bat for it", or sometimes may even "bat against" if it does not fit with their political motivations. Changes in political and executive members in local authorities add to the difficultly for innovative individuals trying to deliver a long term strategy. These factors combine to underline the contention that, "the role that influential individuals or learning champions play in driving change in an organization is potentially more complex in the public-sector where both elected politicians and managers may be involved in such roles" (Rashman et al, 2009: 481). This context supports Hartley's (2005: 33) assertion that, "the idea of the creative individual engaging in innovation single-handedly is very limited" and that while, "there is certainly a role for individuals…also important are groups, teams and a critical mass of support" (ibid).

Both these platforms benefitted from significant investment at the start. This provided a certain degree of freedom and senior buy in that could help to nurture innovation, but this quickly deteriorated as personnel shifts, policy changes, and financial pressures began to mount:

> "*It was more the mindset of just not being confident enough to grab things and go with it, and trust people. And I don't think that's about the money, I think that's about the culture…we were very confident, collaborative, and we trusted first and worried about things later, and that seemed to change. So I think that was more of a leadership crisis than a funding crisis…but it needs that level of ambition and confidence*" (Comoodle)

To achieve a transition, niche innovations must be able to interact with their regime level, adapting themselves and their regime in a mutually beneficial, and co-evolving path. For this to occur in the public-sector, the first level of adaption in the regime must come from those actors within the local authority itself. This was found wanting, particularly in Kirklees, where key actors, who should have been championing these new ways of working and the potential social and environmental gains that they could bring, were conspicuous by their absence:

> "*Even our own service and my own management team that I attended, didn't rally their troops to push out messages that we needed them to do, so there was no corporate sign up to it whatsoever*" (Comoodle)

This lack of support was even more surprising when you consider the alignment of the platform with the priorities of the authority. A motivating factor in the development of Comoodle was that the community self-sufficiency message behind the platform was aligned with the local authority's priority to try to redefine its role from paternalistic deliverer of services to a more facilitating role:

> "*The rhetoric throughout all this time that the council increasingly said was that we're going to be less a provider of services and more of a facilitator, that was the direction of the authority. So we're not going to do social care or youth work, we're going to facilitate social care, we're going to facilitate youth work, well this platform was all about facilitating the very things they were talking about…strategically it was a perfect fit for the organisation because of this new enabling, facilitating role*" (Comoodle)

Comoodle was a strong strategic fit with this priority to shift to an enabling role – a role also highlighted in other local authorities (Northall, 2019 – Chapter 6 in this thesis) and suggesting that policy makers and public managers have moved beyond Hartley's (2005) 'networked governance' approach of leadership and exploration to become facilitators and enablers. This potential for Comoodle to become a "new service", as understood by the original Senior Directors, which could enable more with less and avoid the need for a retrenchment of services, was not supported by the succeeding senior management. Instead, their approach seems to underline the preference of many local authorities to continue to exhaust efficiency savings or reduce services rather than to invest in preventative and need reduction approaches, reinforcing the marginalisation narrative over the survival narrative (Hastings et al, 2015).

These case studies, particularly Comoodle, paint a picture of regime actors involved in the governance of innovation in the public-sector that do not demonstrate the nurturing tendencies necessary for these platforms to thrive and to ultimately deliver a social or environmental transition, nor a pathway to economic sustainability. The potential for innovation to be nurtured here is highly dependent upon the existence of singularly passionate champions, however, the precarity provided by political personnel changes and policy changes can quite easily derail a developing transition:

> "*If the authority wanted to be this forward thinking, innovative, using technology, thinking about community sharing, being at the cutting edge of things, which was all the rhetoric that we put out when we put the bid in, then you've got to continue to behave in that way and you've got to invest in that. And it was clear that that appetite, for that type of ambition if you like, disappeared when [our Senior Director] walked out the door*" (Comoodle).

Because of the financial pressures within local government, the focus of these actors is so heavily on the bottom line - on how the platform will secure an income to at least cover its own costs - meaning any social or environmental value that is delivered is not seen as a valuable enough return. This financial pressure does not allow the space for failure associated with innovativeness (Leoncini, 2016). This can be seen in the fact that no core funds were invested in these technologies, instead relying on ad hoc and highly competitive grant bidding processes. There is little support provided, and key actors are happier to lose the opportunity than to have to offer money from their own budgets to keep the social and environmental value coming in. This means that instead of being able to dedicate their resources to actually driving up usage and developing the platforms so that they can reach a critical mass and maximise the value they can bring, resource-poor project officers have to spend a significant portion of their time developing revenue streams. The political regime also does not provide this space to fail, as experimentation with new methods sits uncomfortably with risk averse policy makers who prefer the security of tried-and-tested 'innovation forums' highlighted earlier by Hartley (2005).

It is not an easily replicable model for local authorities to be expected to win ad hoc grant funding from highly competitive international and national competitions. Kirklees and Peterborough, were arguably conspicuous amongst the other capitals and major world cities who won funding in their respective competitions – though the magnitude of their success should neither be diminished. The point here is that it is not a sustainable strategy, and can be a considerable gamble, for local authorities to be expected to regularly compete against major European cities, or even against other UK cities, for the resources necessary to invest in innovation that supports their core priorities. Unlike the private-sector, the local public-sector is more accustomed to procuring services, rather than competing for them, and has not traditionally been set up to compete for and secure such funding - though the increasing phenomenon of 'External Funding Officer' positions within local authorities may be beginning to address this latter concern.

7.10 Supporting Future Public-Sector Niches And Transitions

The MLP illuminated, through these two case studies, many aspects of the local public-sector that add additional difficulties for those seeking to deliver a social or environmental transition in their community or city. They also highlight many similarities in the development process as well as the common challenges that hindered successful implementation of both platforms. To overcome these difficulties and to avoid duplication of effort and resources it would be recommended to explore how local public-sector innovation could be nurtured through a central intermediary, but one which is aligned with the needs of local authorities, allowing local agents to maximise the benefits of the local authority niche (Fudge et al, 2016). By centralising the technology and infrastructural resources, the greater economies of scale of a regional or national body - with pooled resources and a greater critical mass - may be the best way to improve the chances of a landscape altering transition occurring. Such a body would be better placed to provide the other vital aspects needed to "[embed] the intermediary within a specific urban context and ... affect a credible influence" (Hodson and Marvin, 2010: 483), including: stability of organisational resources and commitment, and the development and redevelopment of the knowledge base which they have access to. Whilst the local agents could focus on the other aspects of the intermediary body, using their local presence to deliver communications forums necessary to align multiple priorities, and create symbolic visibility in local and national press (ibid).

In the two case studies provided, both platforms targeted the selling of the social and environmental value of their platforms to other local authorities as a way to cover the costs of maintaining the platform beyond an initial funding period – despite their own authority's unwillingness to invest their own money for these same returns. Rather than put the ongoing cost burden on one authority and expect them to sell it to others, by centrally pooling resources at the start of development there are numerous multiplier effects that can be accessed:

- The risk burden is immediately reduced as it requires a much smaller investment from each authority – and may be comparable to the amounts spent in submitting numerous individual bids. This can even be secured up front - a local authority crowdfund - rather than be an additional task alongside development and testing.
- Repetition of effort is removed and you don't have two resource poor authorities developing effectively the same platform – or at least the core technology can be easily repurposed for their differing priorities and target groups.
- Critical mass can be more easily reached as brand awareness is raised nationally rather than just locally, and promotion and engagement budgets benefit from economies of scale.

- Localisation of platforms is still possible and delivery can still be done by locally based teams, but those teams can be focussed solely on local engagement, whilst time consuming tech development and maintenance issues can be dealt with centrally.
- Monitoring and achievement of social and environmental goals can be enhanced, making the non-monetary value much clearer.
- Development of the innovation is shielded from staff churn and political changes overall, whilst local democracy is maintained should an individual authority decide it no longer wants to pursue a particular priority and can remove itself from the process.
- The pressure on strong local champions is reduced during the development phase, removing the reliance on the unlikely 'creative individual'.

Such an intermediary body could operate as Hodson and Marvin (2010) suggested, by linking together social and technical actors, though instead of operating within only one city, this intermediary could pool the resources and knowledge of multiple cities with overlapping or complementary priorities. This addresses a later concern of theirs in relation to the importance of secured, long-term funding to provide committed and incentivised staff within the intermediary who can focus on delivering the shared vision – a challenge raised by both case study authorities, but which neither was able to overcome.

The MLP demonstrates the need for innovations to be nurtured as they interact with the regime, so they can develop their potentially landscape redefining features. But whilst this nurturing role is clear in the private-sector - where resources are invested heavily in rounds of user testing and upgrading; where failure is encouraged as part of a learning process; and where war chests are amassed through rounds of venture capital funding to spend on global marketing and legal challenges to the regulatory boundaries of the existing regime – there currently does not seem to be the resources, or a strong enough appetite for the local public-sector to carry these kind of risks associated with innovation.

8
DISCUSSION & CONCLUSION

8 DISCUSSION & CONCLUSION

This concluding discussion will bring together the primary research evidence with the theoretical underpinnings to address the two overarching research aims as set out in the introduction:

Aim 1: Develop a theoretical understanding of economic sustainability
Aim 2: Investigate the sharing economy as a business model that can deliver a transition towards more sustainable cities

Developing arguments from the literature on sustainability, a theoretical understanding of economic sustainability was induced. This recognised the need for an absolute decoupling of production processes from economic output, and singled out the coevolutionary interaction of urban agents and institutions in either reinforcing or revolutionising these processes. The resultant urban impacts of these interactions are primarily social or environmental, and this discussion will consider the role of economic sustainability as a mediator of trade-offs between these social and environmental impacts.

The focus of this chapter, however, will be on the second aim, and the questions that were developed to attend to this aim. Through an exploration of the sustainability literature, with a focus on the evolutionary institutional economic understanding of the urban, the sharing economy was identified as a business model that may be able to deliver a transition towards more sustainable cities. In order to assess this claim, the focus was placed on the local authority institution and their attempts to develop sharing economy innovation at the city-level. Before these attempts could be identified and analysed, a robust understanding of the unique factors of the sharing economy were needed, to identify which aspects might contribute to a potential pathway to sustainability (Heinrichs, 2013). This was achieved through a systematic literature review (Petticrew and Roberts, 2006) of the sharing economy literature. Using this more analytical understanding – focussed on the provision of access to under-utilised assets through intermediary platforms i.e. access platforms - the interpretation and application by local authority practitioners could be investigated. Through this investigation a number of access platforms were identified that could be conceived as supporting a transition to sustainability. A systems innovation framework, the multi-level perspective (Geels, 2002), was then applied to better understand how these platforms were being developed and how the processes could strengthen a technological transition to sustainability. Unfortunately, this analysis uncovered how three primary pressures – the local authority innovation regime, public-sector austerity, and a process of platformisation - were contributing to a marginalisation of the local authority – see figure 8.1. This produced an ‘enabling authority’ form of public management and innovation governance at the local level (see table 8.2), which largely constrained the ability of the local authority to develop access platforms, and other innovations, that might deliver a transition to sustainability. This aspect of the discussion will therefore be structured around these three primary pressures.

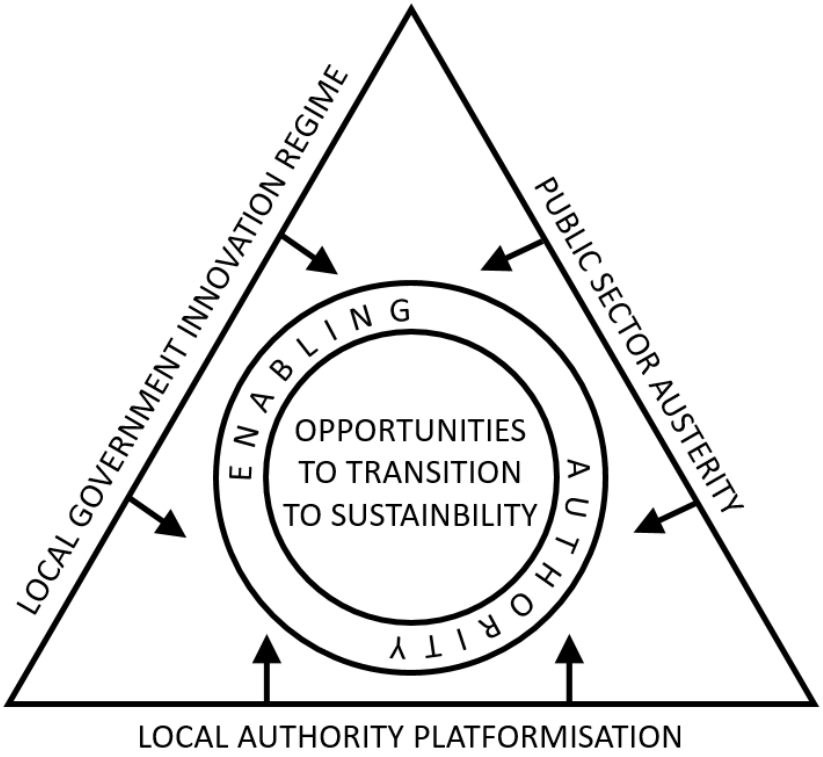


Figure 8.1: Pressures producing enabling authorities that constrain transitions to sustainability

8.1 Aim 1: A Theoretical Understanding of Urban Economic Sustainability

It is possible to develop multiple understandings of urban economic sustainability depending on your particular reflexivity and positionality on the concept. As outlined in chapter 2, the theoretical understanding was produced via inductive reasoning from a combination of three broad academic literatures on urban theory, evolutionary economics, and sustainability studies. More specifically, and betraying the reflexivity of this researcher, there was a focus on the diversity of activity and interaction inherent in ordinary cities (Robinson, 2006) and an appreciation that the resources and impacts of these bounded urban spaces cannot be separated from their near global hinterland (Brenner and Schmid, 2015). Taking an evolutionary and institutional (Veblen, 1898) view of economics and economic geography - one in which "a perpetual process of economic flux" (Boshma and Martin, 2007: 537) and novel recombinations drive creative destruction (Schumpeter, 1934) - allowed for a focus on the coevolution (van den Bergh and Stagl, 2003) of the urban agents and institutions in the niche, illuminating how their interactions either reinforce existing socio-technical regimes or help to transition to new cultural landscapes (Geels, 2002). If a transition does occur, what that new landscape looks like, and whether it represents a transition towards a greater sustainability can be judged by the extent to which there has been a shift from quantitative growth to qualitative development (Daly, 1996); whether capital stocks are held as complementary, not substitutable, and that natural capital is maintained (Cabeza Gutes, 1996); and to

the degree with which production processes are decoupled from economic growth (Jackson, 2009).

From this combination of literatures, the theoretical understanding was stated as:

> *Urban economic sustainability* requires the successful decoupling of production and economic output from natural capital by agents and institutions in diverse and evolving urban spaces. It recognises the temporal, co-evolutionary processes of these agents and institutions and how they can either reinforce or revolutionise the structure of society and the economic, social, and environmental trajectories within it. The urban is the distinctly bounded space in which these processes are enacted, but the true boundaries are almost indistinguishable from the ever-increasing hinterland from which they derive their resources and deposit their emissions.

8.1.1 Economic sustainability as mediator of social and environmental trade-offs

Situating this understanding of economic sustainability with the two other traditionally considered dimensions of sustainability - environment and social - and it becomes difficult to conceptualise the distinct benefits of a solely economic sustainability. This is because the benefits are almost exclusively outlined in either environmental or social terms i.e the absolute decoupling of resources would reduce environmental degradation and pollution, but may require a change in accustomed ways of living and cultural expectations e.g. consumption habits and opportunities for employment. Conversely, the democratisation of access to resources e.g. through the provision of affordable shared mobility, would provide an opportunity to improve social sustainability, but could drive up environmental impacts by increasing the use of destructive transportation modes. It is the contention of this researcher, therefore, that the economic dimension of sustainability is not a distinct trajectory that can be strived for. Instead it is a mediation point between attempts to deliver either an environmentally or socially sustainable transition. In this sense, the economic transition can be considered a balancing of environmental and social trade-offs – an optimised sustainability.

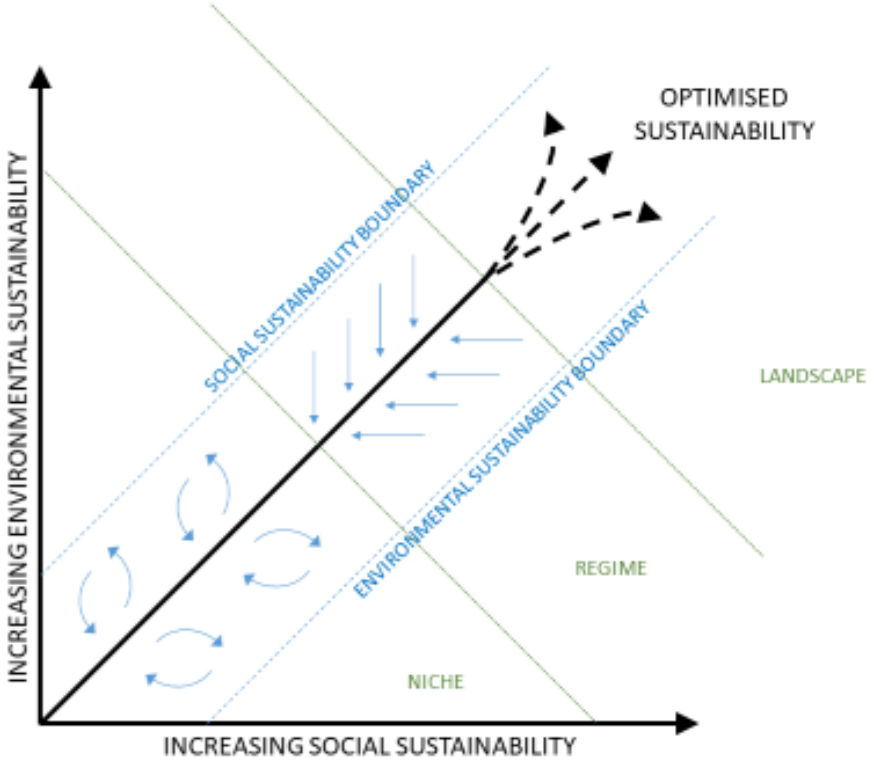


Figure 8.2: Economic sustainability as optimising environmental and social sustainability

This can be generalised within the multi-level perspective already utilised, as shown in figure 8.2. Taking the origin of the graph as the present level of sustainability, attempts to innovate in the niche towards either increasing environmental sustainability or increasing social sustainability will be subject to two forces. One force attempts to optimise the transition back to the equilibrium sustainability line, whilst another will attempt to neutralise the attempt to transition at all, bringing it back to the origin. These forces could be considered regime pressures as the incumbent firms and existing socio-technical configurations of the regime, seek to maintain the status quo of (un)sustainability. If an innovation is able to successfully interact with and negotiate the regime pressures through incremental adaptation and hybridisation of the socio-technical artefacts, then it may, over a long period of time, be able to influence the stable landscape level and make a small diversion of the equilibrium towards either increased environmental, or social sustainability, with likely reductions in the other. A niche innovation that is able to both negotiate the regime and balance both environmental and social sustainability pressures may emerge in the landscape as optimised sustainability.

8.2 Aim 2: Investigating the Sharing Economy as a Business Model That Can Deliver a Transition Towards More Sustainable Cities

With the theoretical underpinning of an urban economic sustainability being rooted in the need for locally-based institutions that can decouple production processes and natural capital from economic growth, the next stage was to identify the business models that offer such opportunities. In the process of compiling the literature on business models for sustainability, repeated references to the growing sharing economy were noted, along with earlier work on collaborative consumption (Botsman and Rogers, 2010). This literature encompassed many disciplines and many competing, complementary, and overlapping business models, with bold claims made regarding the potential to improve sustainability (Heinrichs, 2013; Botsman and Rogers, 2010). High up the list of examples provided of the sharing economy in action was Uber and AirBnB. They were joined by a long list of venture capital driven tech platforms that made up a 'collaborative honeycomb' (Owyang, 2016) and which operated in all sectors of industry from health, transport, and hospitality, to money, food, and learning.

Within the high pressure circuits of venture capital in these industries it is not uncommon for the agents and institutions here to strive for a monist, 'strong theory' to help their next 'disruptive' innovation or business model. Many elements of the industry press amplified the claims of high value and the great potential of the sharing economy (TIME, 2011; The Economist, 2013). As Gibson-Graham (2014: 147) asserted, there is an allure for "powerful discourses that organize events into understandable and seemingly predictable trajectories", particularly when high importance is placed on quickly securing market dominance and being 'first to scale'. For the sharing economy specifically, a number of authors highlighted concerns about this narrative. Netter (2016) took aim squarely at the role of availability entrepreneurs in this amplification of the sustainability claims, whilst Hobson and Lynch (2016) called for a "more 'radical' critique" of the "profound transformations" that were being espoused. Martin's (2016) study of the "contradictory framings" that were being presented, pointed to both positive and negative narratives that were driven by the personal interests of those either looking to enhance, or resist the sharing economy. Whilst Richardson (2015) questioned whether the sharing economy offered a real alternative to the unsustainable capitalist practices, or merely operated an as alternative within them, entrenching business-as-usual economic activity.

Despite these concerns, the sharing economy is being adopted by countries and cities around the world (Wosskow, 2014), with piecemeal regulation (TfL, 2016; Vasagar, 2014) and policy (DCLG, 2013; Liston, 2016) being developed to respectively temper the worst aspects and harness the apparent "profound transformations". This widespread adoption provided the justification for an assessment of the sharing economy as a business model for sustainability (Boons and Lüdeke-Freund, 2013; Cohen and Kietzmann, 2014). To try to minimise the impact of the framings of the availability entrepreneurs, and to move away from the strong theorists of the venture capital driven sharing economy, this research

chose to explore local level attempts to implement sharing economy innovations in the public-sector. This provided a unique exploration of how these business models, and how innovation, is being developed within the local authority environment. Given the existing emphasis on the role of the private-sector - entrepreneurial agents and firm institutions - in the literature on the sharing economy, as well as the low level of research into the nurturing of innovation in the public-sector (as discussed in chapter 7), this was designed to be a novel contribution whilst allowing for the exploration of a vital institution in the pursuit of urban economic sustainability.

Despite attempting to move away from the hyperbole of the private-sector availability entrepreneurs, the local authority environment provides its own value-driven difficulties. Section 3.1 (and also chapter 4) outlined the problems that relate to the behavioural environment of local authority decision-makers and how highly politicised and biased values can cloud the objective phenomenal environment (Kirk, 1963) complicating the understanding of, and response to, 'chaotic concepts' (Sayer, 1992) such as the sharing economy. This is exacerbated by the influence of 'policy entrepreneurs' (Kingdon, 1984) attempting to use "persuasion to address ambiguity" (Cairney, 2013), as well as managerialist gurus contributing to 'cultural circuits of capital' (Thrift, 1997) that further complicate the discourse on an already complex 'wicked problem' (Rittel and Webber, 1973) such as sustainability. The complexity and potential for misunderstanding in this environment was what necessitated the systematic review of the sharing economy (see chapter 5). This highlighted the impetus for the sustainability claims of the sharing economy, based around the provision of access to under-utilised assets by intermediary platforms, and which led to the assertion of 'access platforms' as a more appropriate moniker, and a less 'chaotic concept' than sharing economy.

8.2.1 Identifying and implementing access platforms

As discussed in chapter 4 and 5 in relation to the adoption of qualitative or social science systematic reviews, there are still relatively few when compared to the medical and health disciplines from which they originate. However, there is still a reasonable number of examples, particularly when considering sustainability (Upward and Jones, 2016; Lorenz et al, 2014; Morioka and Carvalho, 2016) and they are proving useful when trying to wrestle with the complexities of policy formulation (Shemilt et al, 2010; Rashman et al, 2009; Osborne et al, 2016) to address wicked problems.

The systematic review of the sharing economy presented in this thesis was designed to provide the objective evidence base to decision-makers, drowning out the persuasive values in their behavioural environment. Whilst the results of this systematic review were highly unlikely to be accepted wholesale by such decision-makers and decisively acted upon (Petticrew and Roberts, 2006), they were intended to provide the foundation for the empirical part of the research, addressing the initial research questions of what the sharing economy is, and how it could contribute to urban economic sustainability. Understanding the critical factors of the sharing economy and how they could be implemented at the city

level, enabled the identification of existing access platforms that are being developed by local authorities in England. These access platforms were designed to deliver local priorities related to social and environmental sustainability, whilst enabling local governments to operate in a more economically sustainably way - by providing access to under-utilised community and business assets.

By focussing on access to under-utilized assets, platforms in the sharing economy can make a credible claim to the decoupling of production processes from economic growth, as they provide opportunities to either optimise and/or recirculate assets. Evidently, there is much scepticism of how this opportunity is harnessed in reality. Concerns focus around the production of negative rebound effects by democratising access which can then, drive the consumption of resources (Bocken et al, 2014); the degradation of working conditions (Netter, 2016); and enable the purchase of additional products from savings made (Frenken, 2017). These concerns cannot be taken lightly, and, as highlighted by Hobson and Lynch (2016), a more radical critique is needed. Currently, the empirical research into the sustainability impacts is very limited, and largely focusses on the private-sector, venture capital platforms discussed above (Martin et al, 2010; Shaheen et al, 2016).

Table 8.1: Access platforms identified by and developed with local authorities

Platform	**Local Authority**	**Description**
Comoodle	Kirklees	Facilitates the sharing of 'stuff, space and skills' to help provide social value, monetary savings, and to build trust amongst residents, community organisations, and businesses.
GoodGym	Sheffield	Part of their 'Ageing Well' initiative, and which matches people who want to get fit with elderly people who need errands doing.
PlaceGo	Manchester	Part of their 'Ambition for Ageing' initiative targeting social isolation, and providing a community generated events forum to highlight existing activities for the elderly.
Share Peterborough	Peterborough	Allows local businesses to share old office and industrial equipment that would otherwise become waste.
Sussex Nightstop	Brighton & Hove	"Airbnb for homelessness", Sussex Nightstop targets young people at risk of homelessness and provides temporary accommodation in the spare rooms of local residents

By focussing on attempts to implement access platforms at the local level and in the public-sector – hypothesising that access platforms could be used to more effectively deliver public services – it was hoped that the motivation for public value over financial returns would curtail any potential negative rebound effects. And certainly the identification of a number of access platforms did support this contention (see table 8.1) as their focus was heavily on social and environmental improvements. However, as the deeper case studies of two of these platforms uncovered, the pressures on the local authority refocussed attention back to financial returns, and away from the possible sustainability and social value gains.

8.2.2 Primary pressure: local government innovation regime
As outlined in chapter 7, and utilising the MLP framework (Geels, 2002) a number of the socio technical aspects of the local authority innovation regime created a pressure on attempts to successfully implement the access platforms Comoodle and Share Peterborough.

Technology and infrastructures: despite significant investment from external sources, and dedicated tech development utilised, these platforms were still considered to be second rate in comparison to the private-sector platforms. It wasn't even the case that these platforms were in competition but they created an expectation that the case study platforms needed to be "slick" from day one.

Leadership and support: at the early stages of development there was some senior buy-in and support, particularly in the case of Comoodle, where the leader of the council had been involved in the early development. In this case, there was an awareness that, if properly implemented, the platform could create a new service within the local authority, and realise their social and economic priorities. However, the churn of individuals, both due to political manoeuvres and executive restructuring, meant a loss of direct contact with the senior leadership of the authority. The new leadership was accused of not going in to "bat for it", or possibly even "batting against it", while heads of service were not seen to be interested in providing the basic promotion needed to build the critical mass required for it to succeed. However, the churn of political parties was framed as a positive factor for innovation in one authority in which the need to operate "tactically not strategically" was seen as more supportive of innovation and new ideas.

Rhetoric and appetite for innovation: this lack of support impacted negatively on the appetite and culture for this innovation. The implementation team went from "confident to grab things and go with it", akin to the Facebook motto of, "move fast and break things", to feeling isolated and dwindling as their team retrenched and responsibility was bounced around different departments. Of particular concern, was the fact that this platform matched both the authority's rhetoric of being "forward thinking, innovative, cutting edge", as well as their desire to operate in a more enabling, rather than providing, role.

The local authority provided the predominant parts of both the niche and the regime in these attempts to embed access platform innovation. Despite this, the local authorities appeared unaccustomed to such innovation development and failed to provide support for the social and environmental returns once external funding ran out. As a result, the beneficial niche characteristics of local authorities identified by Fudge et al (2016) – local political influence (galvanise community approaches), engaging the public (demonstrate impact), and technology and infrastructure (lobby and leverage links to national policy) – could not be realised.

This inability to realise innovation potential fits with the concerns raised by Smith et al (2010) relating to how regime pressures tend to result in incremental or 'normal'

innovation at best. The niche can provide opportunities for more revolutionary or 'radical' innovation, but currently the local authority still views innovation as a function of best practice – as evidenced by the public-sector 'innovation forums' (Hartley, 2005). There is a need for "robust strategies" (Burgman, 2015), because they do not have the political, nor financial, space for learning from failure (Cyert and March, 1963), widely considered to be a prerequisite for innovation (Leoncini, 2016). And when placed under any other additional pressures, the temptation is to quickly retrench back to tried and tested methods, as was seen in the preference to let a developed resource, in the Comoodle platform, be transferred externally, rather than invest any financial or human resource into its further expansion.

Contrasting this to the R&D departments within large incumbent firms - i.e. where a single firm also operates the niche and elements of the regime - the clear financial imperative precipitates the levels of investment, the supportive environment, and the room to fail and learn. However, when the local authority holds the niche and regime elements, and the imperative is public value, there appears to be a loss of direction and support because there is still a strong need for financial returns. This is the case at all times in the local authority, but has been noticeably exacerbated during the recent period of austerity, another of the primary pressures which will now be described.

8.2.3 Primary pressure: public-sector austerity

In chapter 6 it was found that austerity was framed as both a barrier to activity and opportunities, but also as a driver of new ways of working, with one authority asserting that "we can't cut our way out of this crisis [austerity]", and another advocating their ability [need] to redesign services in the wake of austerity cuts. In this way, austerity could be conceptualised as a test of long-term financial sustainability, with those authorities able to adapt also able to continue the provision of services more sustainably in the future. This fits with Hastings et al (2015) survival narrative, framed as the driver of innovation, and reflecting the "persistence and resilience" of local authorities (John, 2014: 687). This contrasted with the marginalisation narrative (Hastings et al, 2015) of those focussing on cost reduction and the retrenchment of services, and risking a "public service decay" (Stoker, 2012: 15).

However, despite the resilient rhetoric above, both the examples identified here actually demonstrate more marginalising qualities. The latter was largely predicated on the authority's ability to quickly make job cuts that enabled them to continue delivery, whilst the former espousal of a focus on innovation over cost cutting was in an authority, like many interviewed, which considered their rationalisation of services into a central building as an innovative response to austerity. Barford and Gray (2018) as part of their analysis of the uneven impacts of local government austerity (Gray and Barford, 2018), looked specifically at the 'spatial reorganisation' of public assets, notably libraries, and how austerity has precipitated a selling off of assets, and a merging of activities that fundamentally changes the "the symbolic and material resources the library embodies, uses by the community, and the labour used to produce these spaces" (2018: 53). They contend that these changes

result in users behaving as "neoliberal subjects" as these spaces increasingly become used for job searches necessary for the claiming of state welfare. The rationalisation of public buildings, identified in chapter 6 as the most cited example of a local authority sharing platform, aligns with central government policies of 'One Public Estate' or 'best endeavours'[41], both of which are designed to elicit the maximum financial return from local authority assets. This continued, and increasing, focus on bottom lines exacerbates attempts to work in new ways and to target social and environmental returns.

With regards to broader sustainability concerns, this echoes the difficulties in appropriately measuring success. Both the ordinary cities (Robinson, 2006) and diverse economies (Gibson-Graham, 2006) approaches seek to highlight their respective urban settings and economic processes as more than a narrow view of, respectively, agglomerated advanced producer services, or capitalocentric paid work. They both seek to make visible the much broader reality and diversity of activity. Attempts to broaden GDP as a measure have repeatedly failed, despite much effort (Stiglitz et al, 2009; Coyle, 2015), and attempts to develop non-economic focussed interactions through the spectrum of collaborative, communitarian, gift, sharing or access economies continues to fail because the measures of success (and subsequent motivations) are still centralised in financial returns from throughput measures. This lack of motivation can be seen in the two case study platforms identified in chapter 7, both of whom failed to motivate their own authorities to invest in social or environmental returns, let alone other authorities who were vital in their ability to maintain the platform beyond the initial funding period. It can also be seen in the users of platforms who may assert social and environmental goals as their engagement with access platforms, but research continues to identify financial and utilitarian outcomes as the main driver of continued use of platforms (Mohlmann, 2015; Bardhi and Eckhardt, 2012).

In addition to the austerity pressure, the devolution of responsibilities from the central down to the local level since the Localism Act 2011, has created further financial pressures. As highlighted in chapter 6, this was referred to directly by one senior director: "the actual knock on from the health service into local authorities has actually had a far greater impact in my view than austerity from government cuts". The legislative ability to act is far different from the actual reality of being able to act, and this combination of austerity and localism results in the expectation that local authorities will need to be able to do more with less. Drives to instil a 'Big Society' mind set - in which the community are expected to play a greater role in public-sector delivery - have seen a push for a narrative between survival and marginalisation, that of 'responsibilisation' (Hastings et al, 2015). As with the building rationalisation described above, transfer of assets to community ownership was also discussed extensively during the interviews with senior directors. The role of the community was described as vital to the delivery of many

[41] One Public Estate is a joint Local Government Association (LGA) and Cabinet Office programme that encourages a more strategic approach to asset management and "getting more from our collective assets". Best endeavours is the legal duty to ensure that all reasonable efforts are made to ensure the best outcome from the use of a public asset.

activities, but also a lack of community capacity was one of the most highly cited barriers. Whilst this may speak positively to the Lefebvrian contention for 'citadins' to organise and interact around their needs without the need for 'cyberanthropes', the reality is that the reduction in funding from austerity, coupled with an increase in responsibility and a greater expectation for community involvement, are together creating the third pressure identified - the platforming of local authorities.

8.2.4 Primary pressure: local authority platformisation

During this investigation of how access platforms are being implemented by local authorities, many references were made by senior directors to a shift in the priority of the local authorities. This shift was not focussed towards a more sustainable trajectory but was instead a shift from being a provider of services to an enabler of them – a platforming of the local authority itself, rather than merely the implementation of one. This was to entail many of the aspects highlighted above, notably a retrenchment from service delivery necessitated by reduced budgets, and the utilisation of community members and organisations. This was framed as a renewed social contract in one authority, with many making reference to new roles of facilitation, participative models, and modes of self-sufficiency or collaboration.

Much effort was made to mystify this retrenchment and responsibilisation under more positive framings. The community was able to become more "independent" and were characterised as the real sites of "creativity" and "innovation", able to "add value" and build a "new relationship" with their "encouraging" local authority. Despite this process of platformisation echoing many aspects of access platforms – notably the ability to deliver services with reduced resources by providing access to community and business assets – and despite an intention for the Comoodle platform to "[create] a new service" and deliver on local social priorities, the case study platforms both failed to receive any local authority investment, and inconsistent levels of internal support.

Instead, the focus of this platforming activity, predicated heavily on the cost-reducing processes of rationalising and optimising public assets highlighted above, is most reminiscent of the 'lean platform' typology outlined by Srnicek (2016: 50) in which platforms, "attempt to reduce their ownership of assets to a minimum and to profit by reducing costs as much as possible". As discussed in chapter 6, the concern here is that to be successful as a lean platform requires significant investment and a 'growth before profit' mind-set – neither of which local authorities can provide. If a private-sector lean platform is unable to compete, its only other option to avoid collapse is to be bought out by the dominant platform (Langley and Leyshon, 2017) begging the question of who will buy-out the uncompetitive platform authority?

8.3 Impacts

The combination of these primary pressures results in a new form of public management, defined as the 'enabling authority'. As will be outlined below, this constrains opportunities to transition to sustainability by negatively impacting the niche level-nurturing of innovation. Creation of an intermediary body could be utilised to reduce risk and enhance development, potentially providing a more supportive niche to opportunities to transition to sustainability.

8.3.1 Primary pressures create enabling authorities that constrain transitions to sustainability

As illustrated in figure 8.1 earlier, the impact of these three primary pressure is the creation of what can be termed, 'enabling authorities'. However, whilst the focus of these authorities is to enable community members and organisations to be more self-sufficient - and to arguably distract from marginalising processes of public service retrenchment – the structure and priorities of these enabling authorities does little to enable transitions to sustainability, and may in fact constrain opportunities. Returning to Hartley's (2005) evolution of innovation in public management since the mid-twentieth century, it is possible to now add 'enabling authority' to this nomenclature – see table 8.2.

Table 8.2: Extension of Hartley's innovation and improvement in different conceptions of governance and public management (adapted from Hartley, 2005: 29)

	'Traditional' public administration	*'New' Public Management*	*Networked governance*	*Enabling authority*
Innovation	Some large-scale, national and universal innovations	Innovations in organizational form more than content	Innovation at both central and local levels	Innovation encouraged by citizens and local organisations
Improvement	Large step-change improvements initially, but less capability for continuous improvement	Improvements in managerial processes and systems. Customer focus produces quality improvements in some services	Aiming for both transformational and continuous improvement in front-line services	Barriers to activity reduced and focus on levering in external funding
Role of policy-makers	Commanders	Announcers / commissioners	Leaders and interpreters	Rationalisers and optimisers
Role of public managers	'Clerks and martyrs'	Efficiency and market maximizers	'Explorers'	Enablers and promoters
Role of the population	Clients	Customers	Co-producers	Providers and users

In an ‘enabling authority’ the role of central policy-makers is to proscribe the rationalising and optimising of assets, with a focus on financial returns – as seen via the policies of One Public Estate and best endeavours. This leaves public managers trying to play the role of enabler between community members and organisations, as well as local business, in order to facilitate the delivery of public services or social value from them instead. They must also promote this community involvement in service delivery positively, framing it as an opportunity. This leaves the population tasked with taking on greater responsibility under a renewed social contract, evolving from the co-producer, or even co-designer, of services into the provider and user of services.

The enabling authority constrains opportunities for transitions to sustainability by providing an unsupportive environment for the radical niche innovation that is needed for such a transition. As described above, many of the socio-technical aspects of the local authority regime both fail to protect the local authority niche from external market forces, nor nurture an accumulation of niche innovation within the local authority. This makes it extremely difficult for innovation to be properly developed and disseminated beyond an initial funding period. Instead of the necessary nurturing environment, platform managers are tasked with developing their innovation and simultaneously marketing and securing additional funding for it. Whilst this dual role is difficult in any sector, it is particularly hard in a sector more accustomed to commissioning services rather than securing funding for activity.

8.3.2 Support for intermediary development of local authority innovation

As discussed by Hodson and Marvin (2010), some form of intermediary body would be more appropriate and may be able to help realise Srnicek’s (2016) call for public and collectivist platforms, which could “make use of the data collected by these platforms in order to distribute resources, enable democratic participation, and generate further technological development" (Srnicek, 2016: 128). How this intermediary body is structured and governed would be a productive area of further research, with many organisations, such as the ‘Local Government Association’ or the ‘What Works Centre for Local Economic Growth’ already attempting to support local government transitions and development. Integration of a specific body tasked with exploring how local authorities can better harness their unique niche characteristics (Fudge et al, 2018) may be able to remove some of the constraints that enabling authorities place upon opportunities for transitions to sustainability. As highlighted in chapter 7, this body could also mitigate some of the difficulties associated with nurturing niche innovation by helping to pool (local authority crowdfund) resources and therefore reduce risk; increase critical mass; reduce wasteful parallel development of similar technologies; improve monitoring and better quantify non-financial returns; and reduce the impact of political churn of decision-makers. Local managers can then focus on the localisation aspects of the platform, concentrating on the local face-to-face marketing - highlighted as vital during the case studies - galvanising local support, and demonstrating the value.

In recognising Hodson and Marvin's (2010) urban "coalitions of interest" and the ability of such an intermediary body to be able to bring together key actors around shared priorities. This opens up a particular area of exploration on how this body integrates platform actors into the priorities of local authorities, as well as how sharing platform technology is situated in a broader platform ecology. As was shown in chapter 5, piecemeal attempts to regulate or stimulate sharing platform firms was having limited success, opening up respective accusations of stifling innovation or enabling a wild west market. Lessons must be learned from these experiences, and a shared approach identified. In the Netherlands, ShareNL[42] was established as such a body to understand how to bring together sharing platforms and cities to overcome key challenges - such as incorporating Mobility as a Service (MaaS) into the city of Utrect to alleviate transportation problems in their city. By developing a network of industry collaborators, and engaging with city administrations to understand their challenges, ShareNL support a more effective delivery of sharing platform technology in the local administrations in which they work. This can minimise the agency conflicts highlighted by Cohen and Kietzmann (2014), which can be detrimental to implementation and costly for the city. ShareNL suggest that their approach also allows for further integration of other emerging technologies, such as AI and blockchain, an area of interest highlighted in chapter 6 during interviews with local authority Senior Directors. This latter aspect intimates at where sharing platforms are situated in a broader platform ecology, discussed in chapter 6 (see Srnicek, 2016; Bonchek and Choudary, 2013; Langley and Leyshon, 2017), and consideration needs to be given to what implications this has on all dimensions of sustainability in cities.

8.3.3 Access platforms offer a route to sustainability but are unlikely to be adopted as a term

In attempting to address the research questions under the aim to identify business models for sustainability, the sharing economy was targeted due to the sustainability claims surrounding it. There is now an increasing literature on this topic but there is also continued difficulty in how to empirically assess this claim, as well as how to assess the counter claims of a negative rebound effect. The application of biased framings by availability entrepreneurs also created a broadening of the sharing economy concept to include many unrelated technology platforms and business models. This precipitated the decision to perform a systematic review and to better illuminate the sustainability drivers of this sharing economy.

The understanding that was induced from the academic literature in this systematic review was best summarised as 'access platforms' instead of sharing economy. This term both highlighted the focus on platforms providing access to under-utilised resources, but also moved away from the semantic confusion related to profiting from sharing. However, the term sharing platform was taken forward for the empirical research because of the weight of existing policy analysis and government responses based on the term sharing economy. Similarly, whilst access is

[42] See http://www.sharenl.nl

demonstrated as the unique factor of the sharing economy that sets it apart from other digital economic concepts, the positive association of sharing, and ability to mystify users (John, 2013b) and persuade decision-makers, means that sharing economy/platform is still likely to persist beyond this research. This can be further evidenced by assertions of access and access economies since 2000 (Rifkin, 2000), with the term more likely to go the way of degrowth - a more appropriate definition that fails as a missile word (Drews and Antal, 2016) despite illuminating the key aspects of the debate and more accurately pointing the way to sustainability.

8.3.4 Academic challenges and contributions

There were many challenges that had to be overcome in the completion of this research. Notably, working as part of an interdisciplinary project, with a much broader vision of urban sustainability that spanned both social and physical sciences, created many barriers in the early development of this thesis. Epistemological differences as well as widely differing definitions of terms had to be addressed, which added considerable time to the initial stages. Whilst the scope of the thesis had to be significantly narrowed in order to identify a manageable project with achievable aims.

Focussing on the local authority as an urban institution in an evolutionary economic geography provided specific research challenges. The exploration of both nurturing innovation and business models for sustainability is more readily associated with the private-sector, and in particular venture capital-backed technology firms. The literature on the public-sector, particularly the local public-sector, was much more limited, but this also provided an opportunity for a novel research contribution.

In terms of methods, the use of a systematic review in the social sciences, and as a tool for policy analysis, is not yet commonplace. This again provided challenges in identifying the most appropriate way to utilise this method to achieve the research aims. Despite the time cost of undertaking a systematic review singlehandedly – and the likely futility of getting the findings of this adopted more broadly, as highlighted above – the focus on access to under-utilised resources, and a confirmation of this as the primary claim to sustainability, provided a much stronger foundation with which to investigate their adoption in local authorities. Outlining this method in detail in chapter 4 also provides a unique demonstration of how others may utilise, and improve upon, this method of policy analysis of wicked problems.

8.4 Conclusion

The creation of enabling authorities by the primary pressures of austerity, innovation regime, and platformisation, has been shown to constrain opportunities to transition to sustainability at the urban level. This creates implications for local authorities, and indeed all urban agents and institutions, tasked with delivering transitions to sustainability. At a time when policies of austerity are nearing their ten-year anniversary, and some are, very arguably, suggesting that the period of

austerity in the UK is over, understanding what the role of local government will look like during the next decade will be vital in delivering successful transitions to sustainability. The importance of this understanding is underlined by the ambition, and short timeframe, of the Sustainable Development Goals, requiring that goals are achieved by 2030. Failure to provide the environment in which the necessary innovation can be nurtured in the niche and disseminated through the existing regime and landscape, will put these ambitious aims in jeopardy, and may also contribute to a further marginalisation of public service delivery.

Allied to this is the risk associated with failing to identify opportunities and threats to urban sustainability. The systematic review methodology employed helped to highlight the main drivers behind the potential sustainability of access platforms, but also highlighted the role of persuasion being employed to address ambiguity. This adds more weight to the values in the behavioural environment over the evidence in the phenomenological environment of the local authority decision-maker. At the same time, recent declarations of climate emergencies add greater urgency providing a new policy window, which may reinvigorate local attempts to deliver sustainability transitions by increasing investment and enabling a more nurturing niche.

Further research would be best focussed on how local authorities can both harness their unique characteristics and mitigate the risks of development, when looking at developing innovation and new ways of working. This thesis suggests a multi-authority intermediary body to provide this, but more detail on how this would operate, along with a deeper analysis of the opportunities and threats that this body would create, is required. At a time when funding, greater freedom, and additional responsibilities are being handed down to the local scale at a rate never before seen, the ability for urban institutions to be able to incorporate these changes effectively is of even greater significance. This thesis also suggests that the current pressures being applied at the urban scale are constraining attempts to deliver a transition to urban economic sustainability. As was identified by one local authority Senior Director, “we can’t cut our way out of this crisis”, and neither can we cut our way towards urban economic sustainability.

9
REFERENCES

9 REFERENCES

Ambrosino, G., Nelson, J. D., Boero, M. and Pettinelli, I. (2016) *Enabling intermodal urban transport through complementary services: From Flexible Mobility Services to the Shared Use Mobility Agency: Workshop 4*. Developing inter-modal transport systems. Research in Transportation Economics, 59, 179–184.

Amin, A. and Graham, S. (1997) *The ordinary city*. Transactions of the Institute of British Geographers, 22, 411–429.

Amin, A. and Thrift, N.J. (2001) *What kind of economic theory for what kind of economic geography?* Antipode, 32, 4–9.

Amin, A. and Wilkinson, F. (1999) *Learning, proximity and industrial performance*. Cambridge Journal of Economics, 23, 121-125.

Anchala, R., Kannuri, N.K., Pant, H., Khan, H., Franco, O.H., Di Angelantonio, E. and Prabhakaran, D. (2014) *Hypertension in India: a systematic review and meta-analysis of prevalence, awareness, and control of hypertension*. Journal of hypertension, 32(6), 1170–1177.

Angelo, H. and Wachsmuth, D. (2015) *Urbanizing urban political economy: A critique of methodological cityism.* International Journal of Urban and Regional Research, 39, 16–27.

Antolín-Lopez, R., Delgado-Ceballos, J. and Montiel, I. (2016) *Deconstructing corporate sustainability: a comparison of different stakeholder metrics*. Journal of Cleaner Production, 136, 5–17.

Aptekar, S. (2016) *Gifts Among Strangers: The Social Organization of Freecycle Giving*. Social Problems, 63, 266–283.

Archer, M.S. (1982) *Morphogenesis Versus Structuration: On Combining Structure and Action*. British Journal of Sociology, 33(4), 455– 83.

Archer, M.S. (1995) *Realist Social Theory: The morphogenetic approach*. New York: Cambridge University Press.

Arthur, W.B., Durlauf, S. and Lane, D. (1997) *The Economy as a Complex Evolving System, II*. Reading, MA: Perseus Books.

Arvidsson, A. and Peitersen, N (2013) *The Ethical Economy: Rebuilding Value After the Crisis*. New York: Columbia University Press.

Bain, R., Cronk, R., Wright, J., Yang, H., Slaymaker, T. and Bartram, J. (2014) *Fecal Contamination of Drinking-Water in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis*. PLoS Med 11(5), e1001644.

Balaram, B. (2016) *Fair Share: Reclaiming power in the sharing economy*. London: Royal Society of the Arts.

Ballon, P. and van Heesvelde, E. (2011). *ICT platforms and regulatory concerns in Europe*. Telecommunications Policy, 35(8), 702-714.

Ballús-Armet, I., Shaheen, S., Clonts, K. and Weinzimmer, D. (2014) *Peer-to-Peer Carsharing*. Transportation Research Record: Journal of the Transportation Research Board, 2416, 27–36.

Bandyopadhyay, S., Bardhan, A., Dey, P., Das, S., Ghosh, S., and Biswas, P. (2016). *"Education for All" in a Connected World: A Social Technology-driven Framework for e-mobilizing Dormant Knowledge Capital through Sharism and Mass Collaboration*. Procedia Engineering, 159(June), 284–291.

Banister, D. (2008) *The sustainability mobility paradigm*. Transport Policy, 15, 73-80.

Banning, M. E. (2015) *Shared entanglements - Web 2.0, info-liberalism and digital sharing*. Information, Communication and Society, 19(4), 489-503.

Barbrook, R. (1998 [2005]) *The Hi-Tech Gift Economy*. First Monday, 3(12).

Bardhi, F., and Eckhardt, G. M. (2012) *Access-Based Consumption: The Case of Car Sharing*. Journal of Consumer Research, 39 (December), 881–898.

Barford, A. and Gray, M. (2018) *Public space at a time of austerity*. 5th Global Conference on Economic Geography 2018, University of Cologne, Germany: Book of Abstracts.

Barnes, S.J. and Mattsson, J. (2016) *Understanding current and future issues in collaborative consumption: A four-stage Delphi study*. Technological Forecasting and Social Change, 104, 200–211.

Barnes, T.J. and Sheppard, E. (2010) *Nothing includes everything: Towards engaged pluralism in Anglophone economic geography*. Progress in Human Geography 34(2), 193–214.

Basiago, A.D. (1999) *Economic, social, and environmental sustainability in development theory and urban planning practice*. The Environmentalist 19, 145–161.

Bassett, T. J. and Fogelman, C. (2013) *Déjà vu or something new? The adaptation concept in the climate change literature*. Geoforum, 48, 42–53.

Bauer, R. M., and Gegenhuber, T. (2015). *Crowdsourcing: Global search and the twisted roles of consumers and producers*. Organization, 22(5), 661–681.

Bayulken, B. and Huisingh, D. (2015) *A literature review of historical trends and emerging theoretical approaches for developing sustainable cities (part 1)*. Journal of Cleaner Production, 109, 11–24.

BBC (2016) *Libraries lose a quarter of staff as hundreds close*. BBC News, 29 Mar. Available at https://www.bbc.co.uk/news/uk-england-35707956.

BBC (2018a) *Northamptonshire County Council bans spending again*. BBC News, 24 Jul. Available at https://www.bbc.co.uk/news/uk-england-northamptonshire-44937892.

BBC (2018b) *Budget 2018: Austerity finally coming to an end, says Hammond*. BBC News, 29 Oct. Available at https://www.bbc.co.uk/news/uk-politics-46010550.

Beaverstock, J.V., Smith, R.G. and Taylor, P.J. (1999) *A roster of world cities*. Cities, 16(6), 445-458.

Beaverstock, J.V., Smith, R.G. and Taylor, P.J. (2000) *World-City Network: A New Metageography?* Annals of the Association of American Geographers, 90(1), 123-134.

Belk, R. (2010) *Sharing*. Journal of Consumer Research, 36(5), 715–734.

Belk, R. (2014a) *You are what you can access: Sharing and collaborative consumption online*. Journal of Business Research, 67(8), 1595–1600.

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

Bellotti, V., Ambard, A., Turner, D., Gossmann, C., Demkova, K. and Carroll, J.M. (2015) *A Muddle of Models of Motivation for Using Peer-to-Peer Economy Systems*. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems, 1085–1094.

Benington, J. (2000) *Editorial: The Modernization and Improvement of Government and Public Services*. Public Money and Management, 20(2), 3-8

Benkler, Y. (2006) *The Wealth of Networks: How social production transforms markets and freedom (Vol. 7)*. New Haven: Yale University Press.

Bennett, C. and Howlett, M. (1992) *The lessons of learning: reconciling theories of policy learning and policy change*. Policy Sciences, 25, 275-294.

Berkhout, F. (2002) *Technological regimes, path dependency and the environment*. Global Environmental Change, 12(1), 1–4.

Berkhout, F., Smith, A. and Stirling, A. (2004) *Socio-technological regimes and transition contexts.* In B. Elzen, F.W. Geels and K. Green (eds) System Innovation and the Transition to Sustainability: Theory, Evidence and Policy. Cheltenham: Edward Elgar.

Bernstein, R.J. (1988) *Pragmatism, pluralism and the healing of wounds*. Proceedings and Addresses of the American Philosophical Association 63, 5–18.

Bero, L.A., Grilli, R., Grimshaw, J.M., Harvey, E., Oxman, A.D., Thomson, M.A. (1998) *Getting research findings into practice. Closing the gap between research and practice: An overview of systematic reviews of interventions to promote the implementation of research findings*. British Medical Journal, 317 (7156), 465-468.

Bloomberg Philanthropies (2014) *Five Cities Selected as Winners in Bloomberg Philanthropies 2014 Mayors Challenge*. Bloomberg Philanthropies, 17 Sept. Available at https://www.bloomberg.org/press/releases/five-cities-selected-winners-bloomberg-philanthropies-2014-mayors-challenge/

Bloomberg Philanthropies (undated A) - *Applying the Bloomberg Philanthropies approach to inspire bold innovations from cities*. Available at https://www.bloomberg.org/program/government-innovation/mayors-challenge/#overview

Bloomberg Philanthropies (undated B) – *Mayors Challenge: Past Winners*. Available at https://mayorschallenge.bloomberg.org/ideas/comoodle

Bloor, M. (2011) *Addressing social problems through qualitative research*. In D. Silverman (eds) *Qualitative Research*. London: Sage Publications.

Blunkett, D. and Richards, D (2011) *Labour in and out of government: political ideas, political practice and the British political tradition*. Political Studies Review 9 (2), 178–192.

Bocken, N.M.P. (2015) *Sustainable venture capital – catalyst for sustainable start-up success?* Journal of Cleaner Production, 108, 1–12.

Bocken, N.M.P., Short, S.W., Rana, P. and Evans, S. (2014) *A literature and practice review to develop sustainable business model archetypes*. Journal of Cleaner Production, 65, 42-56.

Bohnsack, R., Pinkse, J. and Kolk, A. (2014) *Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles*. Research Policy, 43, 284–300.

Bonchek, M. and Choudary, S. (2013) *Three elements of a successful platform strategy*. Harvard Business Review, Jan. Available at https://hbr.org/2013/01/three-elements-of-a-successful-platform.

Bonciu, F., and Bâlgăr, A. C. (2016) *Sharing economy as a contributor to sustainable growth. An EU perspective*. Romanian Journal of European Affairs, 16(2), 36–45.

Boons, F. and Lüdeke-Freund, F. (2013) *Business models for sustainable innovation: state-of-the-art and steps towards a research agenda*. Journal of Cleaner Production, 45, 9–19.

Boroń, M., Brzeziński, J., and Kobusińska, A. (2017) *SelfAid Network—a P2PMatchmaking Service*. In A. Zgrzywa, K. Choroś, and A. Siemiński (eds) Multimedia and Network Information Systems (Vol. 506). Switzerland: Springer.

Boschma, R. and Martin, R. (2007*) Constructing an evolutionary economic geography*. Journal of Economic Geography, 7(5), 537–548.

Botsman, R. and Rogers, R. (2010) *What's Mine Is Yours: The Rise of Collaborative Consumption*. London: Collins.

Botsman, R. (2016) *Keynote Speech*. 3rd International Workshop on the Sharing Economy: University of Southampton.

Botsman, R. (undated) *Collaborative Consumption*. Available at http://rachelbotsman.com/thinking/.

Bouncken, R. B., and Reuschl, A. J. (2016) *Coworking-spaces: how a phenomenon of the sharing economy builds a novel trend for the workplace and for entrepreneurship*. Review of Managerial Science, 12(1), 317–334.

Bower, J.L. and Christensen, C.M. (1995) *Disruptive technologies: catching the wave*. Harvard Business Review, Jan-Feb, 43–53.

Boyatzis, R.E. (1998) *Transforming qualitative information: thematic analysis and code development*. California: Sage.

Brand, U. (2012) *Green Economy - the Next Oxymoron?* GAIA - Ecological Perspectives for Science and Society, 21(1), 28–32.

Braun, V. and Clarke, V. (2006) *Using thematic analysis in psychology*. Qualitative Research in Psychology, 3(2), 77–101.

Brenner, N. (2018) *Debating planetary urbanization: For an engaged pluralism*. Environment and Planning D: Society and Space, 36(3), 570–590.

Brenner, N. and Schmid, C. (2014) *The urban age in question*. International Journal of Urban and Regional Research, 38, 731–755.

Brenner, N. and Schmid, C. (2015) *Towards a new epistemology of the urban?* City, 19(2–3), 151–182.

Brooker, S., Hotez, P.J. and Bundy, D.A.P. (2008) *Hookworm-Related Anaemia among Pregnant Women: A Systematic Review*. PLoS Neglected Tropical Diseases, 2(9), e291.

Brugnoni, E., Polzonetti, A., and Sagratella, M. (2016) *ICT for Promoting Human Development and Protecting the Environment*. In F.J. Mata and A. Pont (eds) WITFOR 2016, IFIP AICT (Vol. 481). Switzerland: Springer.

Brundtland, G.H. (1987) *Our Common Future: Report of the World Commission on Environment and Development*. New York: Oxford University Press/United Nations.

Bucher, E., Fieseler, C., and Lutz, C. (2016) *What's mine is yours (for a nominal fee) - Exploring the spectrum of utilitarian to altruistic motives for Internet-mediated sharing*. Computers in Human Behavior, 62, 316–326.

Bui, S., Cardona, A., Lamine, C. and Cerf, M. (2016) *Sustainability transitions: Insights on processes of niche-regime interaction and regime reconfiguration in agri-food systems*. Journal of Rural Studies, 41, 92-103.

Bulkeley, H. (2005) *Reconfiguring environmental governance: Towards a politics of scales and networks*. Political Geography, 24, 875–902.

Bulkeley, H. (2006) *Urban sustainability: learning from best practice?* Environment and Planning A, 38(6), 1029–1044.

Bulkeley, H., Castan-Broto, V. and Maassen, A. (2010) *Governing urban low carbon transitions*. In H. Bulkeley, V. Castan-Broto, S. Marvin and M. Hodson (eds) Cities and low carbon transitions. London: Routledge.

Bunt, L., Harris, M. and Westlake, S. (2010) *Schumpeter Comes to Whitehall: Cuts and Innovation in Public Services*. London: NESTA. Available at https://www.bl.uk/collection-items/schumpeter-comes-to-whitehall-cuts-and-innovation-in-public-services

Burgess, R.G. (1984) *In the Field: An introduction to field research*. London: Allen & Unwin.

Burgman, M.A. (2015) *Trusting Judgements: How to Get the Best out of Experts*. Cambridge: Cambridge University Press.

Cabeza Gutés, M. (1996) *The concept of weak sustainability*. Ecological Economics, 17 (3), 147–156

Cairney, P. (2013) *Policy Concepts in 1000 Words: Multiple Streams Analysis*. Available at https://paulcairney.wordpress.com/2013/10/31/

Cecere, G., Corrocher, N., Gossart, C. and Ozman, M. (2014) *Lock-in and path dependence: an evolutionary approach to eco-innovations*. Journal of Evolutionary Economics, 24, 1037–1065.

Chalmers, I. (2007) *The lethal consequences of failing to make use of all relevant evidence about the effects of medical treatments: the need for systematic reviews*. In P. Rothwell (eds) Treating individuals: from randomised trials to personalised medicine. London: Lancet.

Chalmers, I., Sackett, D. and Silagy, C. (1997) *The Cochrane Collaboration*. In A. Maynard, and I. Chalmers (eds) Non-random reflections on health services research: On the 25th anniversary of Archie Cochrane's effectiveness and efficiency, 231-249. London: British Medical Journal.

Cheng, M. (2016) *Sharing economy: A review and agenda for future research.* International Journal of Hospitality Management, 57, 60–70.

Choudary, S.P. (2015) *Platform Scale*. Singapore: Platform Thinking Labs.

Christensen, C.M., Raynon, M.E. and McDonald, R. (2015) *What is Disruptive Innovation?* Harvard Business Review, (December), 44–53.

Clark, S.G., Palis, F., Trompf, G.W., Terway, T.M. and Wallace, R.L. (2017) *Interdisciplinary problem framing for sustainability: Challenges, a framework, case studies*. Journal of Sustainable Forestry, 36(5), 516-534.

Clifford, N., French, S. and Valentine, G. (2011) *Key Methods in Geography (2nd ed)*. London: Sage Publications.

Coase, R. H. (1937) *The Nature of the Firm.* Economica, 4(16), 386–405.

Cockayne, D.G. (2016) *Sharing and neoliberal discourse: The economic function of sharing in the digital on-demand economy*. Geoforum, 77, 73–82.

Coenen, L., Benneworth, P. and Truffer, B. (2012) *Toward a spatial perspective on sustainability transitions*. Research Policy, 41(6), 968-979.

Cohen, B. and Kietzmann, J. (2014) *Ride On! Mobility Business Models for the Sharing Economy*. Organization & Environment, 27(3), 279– 296.

Cohen, B. and Munoz, P. (2016) *Sharing cities and sustainable consumption and production: towards an integrated framework*. Journal of Cleaner Production, 134, 87–97.

Cohen, W.M. and Klepper, S. (1996) *A reprise of size and R&D*. Economic Journal, 106(437), 925–951.

Cohen, W.M. (2010) *Fifty years of empirical studies of innovative activity and performance*. In B. Hall and N. Rosenberg (eds) Handbook of the Economics of Innovation (Vol. 1). Oxford: Elsevier B.V.

Cooke, P. (2001) *Regional innovation systems, clusters, and the knowledge economy*. Industrial and Corporate Change, 10(4), 945-974.

Cooper, H., Hedges, L. and Valentine, J. (2009) *The Handbook of Research Synthesis and Meta-Analysis*. New York: Russell Sage Foundation.

Cooper, R. and Timmer, V. (2015) *Local Governments and the Sharing Economy*. Vancouver: One Earth.

Cordray, D. and Morphy, P (2009) *Research Synthesis and Public Policy*. In. H. Cooper, L. Hedges and J. Valentine (eds) The Handbook of Research Synthesis and Meta-Analysis. New York: Russell Sage Foundation.

Coyle, D. (2015) *GDP: A Brief but Affectionate History*. Princeton: Princeton University Press.

Creswell, J.W. (1998) *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Thousand Oaks, CA: Sage.

Cusumano, M.A. (2014) *How traditional firms must compete in the sharing economy*. Communications of the ACM, 58(1), 32–34.

Cyert, R.M. and March, J.G. (1963) *A Behavioral Theory of the Firm*. New Jersey: Prentice-Hall.

Daly, H.E. (1977) *Steady-state economics*. San Francisco: W.H. Freeman.

Daly, H.E. (1987) *The economic growth debate: What some economists have learned but many have not*. Journal of Environmental Economics and Management, 14, 323-336.Daly, H.E. (1996) *Beyond Growth: The Economics of Sustainable Development*. Boston: Beacon Press.

Daly, H.E. (1996) *Beyond Growth: The Economics of Sustainable Development*. Boston: Beacon Press.

Dasgupta, P. (2009) *The welfare economic theory of green national accounts*. Environmental and Resource Economics, 42(1), 3–38.

David, P.A. (1985) *Clio and the Economics of QWERTY*. The American Economic Review, 75(2), 332-337.

DCLG (2011) *Planning Policy Guidance 13: Transport*. London: Department for Communities and Local Government.

DCLG (2014) *Promoting the sharing economy in London: Policy on short-term use of residential property in London*. London: Department for Communities & Local Government.

de Certeau, M. (1984) *The practice of everyday life*. Berkeley: University of California Press.

Denzin, N. and Lincoln, Y. (2005) *Introduction: The Discipline and Practice of Qualitative Research*. In N. Denzin and Y. Lincoln (eds) The Sage Handbook of Qualitative Research (3rd ed). California: Sage Publications.

Denzin, N.K. (1994) 'The Art and Politics of Interpretation', in N.K. Denzin and Y.S. Lincoln (eds) Handbook of Qualitative Research. London: Sage.
DfT (2004) *Walking and Cycling: An Action Plan*. London: Department for Transport.

Dixon-Woods, M. (2011) *Systematic Reviews and Qualitative Methods*. In D. Silverman (eds) Qualitative Research. London: Sage Publications.

Drews, S. and Antal, M. (2016) *Degrowth: A "missile word" that back fires?* Ecological Economics, 126, 182–187.

Drucker, P. (1984) *Our Entrepreneurial Economy*. Harvard Business Review, January, 58-64. Available at https://hbr.org/1984/01/our-entrepreneurial-economy.

Duranton, G. and Puga, D. (2004) *Micro foundations of urban agglomeration economies*. In J.V. Henderson and J.F. Thisse (eds) Handbook of Regional and Urban Economics, Vol. 4. Amsterdam: Elsevier.

Durugbo, C. (2016) *Collaborative networks: A systematic review and multi-level framework*. International Journal of Production Research, 54(12), 1–28.
Economist (2013) *The rise of the sharing economy*. The Economist, Mar 9. Available at https://www.economist.com/news/leaders/21573104-internet-everything-hire-rise-sharing-economy.

Edwards, T., Delbridge, R. and Munday, M. (2005) *Understanding innovation in small and medium-sized enterprises: a process manifest*. Technovation, 25, 1119-1127.

Ehrlich, P.R. and Raven, P.H. (1964) *Butterflies and plants: a study in coevolution*. Evolution, 18, 568–608.

Elert, N., and Henrekson, M. (2016) *Evasive entrepreneurship*. Small Business Economics, 47(1), 95–113.

Elliott, S.R. (2005) *Sustainability: an economic perspective*. Conservation and Recycling, 44(44), 263–277.

Elzen, B., Geels, F.W. and Green, K. (2004) *System Innovation and the Transition to Sustainability.* Edward Elgar, Cheltenham.

Engert, S. and Baumgartner, R. J. (2016) *Corporate sustainability strategy - bridging the gap between formulation and implementation*. Journal of Cleaner Production, 113, 822–834.

Erdi-Lelandais, G. (2014) *Understanding the City: Henri Lefebvre and Urban Studies*. Newcastle: Cambridge Scholars Publishing.

Ert, E., Fleischer, A., and Magen, N. (2016) *Trust and reputation in the sharing economy: The role of personal photos in Airbnb*. Tourism Management, 55, 62–73.

Etzkowitz, H. and Leydesdorff, L. (2000) *The dynamics of innovation: From National Systems and "mode 2" to a Triple Helix of university-industry-government relations*. Research Police, 29(2), 109-123.

Evans, I., Thornton, H. and Chalmers, I. (2006) *Testing Treatments: Better Research for Better Healthcare*. London: British Library.

Evans, P. and Gawer, A. (2016) *The Rise of the Platform Enterprise: A global survey*. New York: The Center for Global Enterprise.

Farrell, D. and Greig, F. (2016) *Paychecks , Paydays , and the Online Platform Economy Big Data on Income Volatility*. Washington: JPMorgan Chase & Co Institute.

Fenig, S. and Levav, I. (1993) *Telephone vs Face-to-Face Interviewing in a Community Psychiatric Survey*. American Journal of Public Health, 83(6), 896–898.

Finck, M., and Ranchordás, S. (2016) *Sharing and the City*. Vanderbilt Journal of Transnational Law, 49(5), 1299–1369.

Fink, A. (2005) *Conducting Research Literature Reviews: From the Internet to Paper (2nd Edition)*. Thousand Oaks, CA: Sage Publications.

Flowerdew, R. and Martin, D. (2005) *Methods in Human Geography: a guide for students doing a research project - Second Edition*. Harlow: Pearson Education Limited.

Fogelman, C. and Bassett, T.J. (2014) *Of research questions and literature reviews: A reply to Lorenz et al*. Geoforum, 51, 256–258.

Fontana, A. and Frey, J.H. (1994*) Interviewing: The Art of Science*. In N.K. Denzin and Y.S. Lincoln (eds) Handbook of Qualitative Research. Thousand Oaks, CA: Sage.

Forno, F., and Garibaldi, R. (2015) *Sharing Economy in Travel and Tourism: The Case of Home-Swapping in Italy*. Journal of Quality Assurance in Hospitality & Tourism, 16(2), 202–220.

Foster, J. (1997) *The analytical foundations of evolutionary economics: from biological analogy to economic self-organization*. Structural Change and Economic Dynamics, 8, 427–451.

Frantzeskaki, N., Wittmayer, J. and Loorbach, D. (2014) *The role of partnerships in "realising" urban sustainability in Rotterdam's City Ports Area, The Netherlands*. Journal of Cleaner Production, 65, 406–417.

Fremstad, A. (2016) *Sticky Norms, Endogenous Preferences, and Shareable Goods*. Review of Social Economy, 74(2), 194–214.

Fremstad, A. (2017) *Does Craigslist Reduce Waste? Evidence from California and Florida*. Ecological Economics, 132, 135–143.

Frenken, K. and Boschma, R. (2007) *A theoretical framework for evolutionary economic geography: industrial dynamics and urban growth as a branching process*. Journal of Economic Geography, 7(5), 635–649.

Frenken, K. (2017) *Political economies and environmental futures for the sharing economy*. Philosophical Transactions of the Royal Society A, 375, 20160367.
Friedman, G. (2014) *Workers without employers: Shadow corporations and the rise of the gig economy*. Review of Keynesian Economics, 2(2), 171-88.

Fudge, S., Peters, M. and Woodman, B. (2016) *Local authorities as niche actors: The case of energy governance in the UK*. Environmental Innovation and Societal Transitions, 18(1), 1–17.

Fuentes-Bracamontes, R. (2016) *Is unbundling electricity services the way forward for the power sector?* The Electricity Journal, 29(9), 16–20.

Galvan, J.L. (2005) *Writing Literature Reviews (3rd Edition)*. Glendale, CA: Pyrczak Publishing.

Gambrill, E. (1999) *Evidence-based clinical practice, [corrected] evidence-based medicine and the Cochrane collaboration*. Journal of Behavior Therapy and Experimental Psychiatry, 30(1), 1-14.

Gamito, M. (2017) *Regulation.com. Self-regulation and contract governance in the platform economy: a research agenda*. European Journal of Legal Studies, 9(2), 53–68.

Gansky, L. (2010) *The Mesh: Why the future of business is sharing*. New York: Portfolio Penguin.

Geels, F.W. (2002) *Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study*. Research Policy, 31(8), 1257-1274.

Geels, F.W. (2010) *Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective*. Research Policy, 39, 495–510.

Geels, F.W. (2012) *A socio-technical analysis of low-carbon transitions: introducing the multi-level perspective into transport studies*. Journal of Transport Geography, 24, 471-482.

Geels, F.W. and Schot, J. (2007) *Typology of socio-technical transition pathways*. Research Policy, 36(3), 399–417.

Georgescu-Roegen, N. (1971) *The Entropy Law and the Economic Process*. Cambridge, MA: Harvard University Press.

Germann Molz, J. (2013) *Social networking technologies and the moral economy of alternative tourism: The case of couchsurfing.org*. Annals of Tourism Research, 43, 210–230.

Gerring, J. (2004) *What Is a Case Study and What Is It Good for?* American Political Science Review, 98(2), 341-354.

Gerring, J. (2007) *Case Study Research: Principles and Practice*. Cambridge: Cambridge University Press.

Gibson-Graham, J.K. (1996) *The end of capitalism (as we knew it): a feminist critique of political economy*. Oxford: Blackwell.

Gibson-Graham, J.K. (2005) *Surplus possibilities: postdevelopment and community economies*. Singapore Journal of Tropical Geography, 26, 4–26.

Gibson-Graham, J.K. (2006) *A postcapitalist politics*. Minneapolis: University of Minnesota Press.

Gibson-Graham, J.K. (2008) *Diverse economies: performative practices for other worlds*. Progress in Human Geography, 32(5), 613–632.

Gibson-Graham, J.K. (2014) *Rethinking the economy with thick description and weak theory*. Current Anthropology, 55(S9), S147–S153.

Gibson-Graham, J.K. and Roelvink, G. (2011) *The nitty gritty of creating alternative economies*. Social Alternatives, 30(1), 29–33.

Giddens, A. (1976) *New Rules of Sociological Method.* London: Hutchinson.

Giddens, A. (1984) *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley CA: University of California Press.

Gilbert, R., Salanti, G., Harden, M. and See, S. (2005) *Infant sleeping position and the sudden infant death syndrome: systematic review of observational studies and historical review of clinicians' recommendations from 1940–2000*. International Journal of Epidemiology, 34, 74–87.

Gillespie, T. (2010) *The politics of 'platforms'*. New Media & Society, 12(3), 347-64.

Godelier, M. (1999) *The Enigma of the Gift* (translated by Nora Scott). Chicago: University of Chicago Press.

Goldsmith, E. (1972) *A Blueprint for Survival*. The Ecologist, 2(1).

GoodGym (undated) *What exactly does goodgym do?* Available at https://www.goodgym.org/about

Goodland, R. and Daly, H.E. (1996) *Environmental sustainability: Universal and non-negotiable.* Ecological Applications, 6(4), 1002–1017.

Gould, H. (2016) *7 things we learned about healthcare and the circular economy*. The Guardian, 24 Feb. Available at from https://www.theguardian.com/sustainable-business/2016/feb/24/opportunities-challenges-circular-economy-healthcare-live-chat-highlights.

Graute, U. (2016) *Local Authorities Acting Globally for Sustainable Development*. Regional Studies, 50(11), 1931-1942.

Gray, M. and Barford, A. (2018) *The depths of the cuts: the uneven geography of local government austerity*. Cambridge Journal of Regions, Economy and Society, 11(3), 541-563.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P. and Kyriakidou, O. (2004) *Diffusion of innovations in service organizations: systematic review and recommendations*. Millbank Quarterly, 82, 581– 620.

Haines, H. (1984) *Black Radicalization and the Funding of Civil Rights: 1957-1970*. Social Problems, 32(1), 31-43.

Halbert, L. and Attuyer, K. (2016) *Introduction: The financialisation of urban production: Conditions, mediations and transformations*. Urban Studies, 53(7), 1347–1361.

Hall, P. (1966) *The World Cities*. London: Weidenfeld & Nicholson.

Hamari, J., Sjoklint, M., and Ukkonen, A. (2016) *The Sharing Economy: Why People Participate in Collaborative Consumption*. International Review of Research in Open and Distance Learning, 67(9), 2047–2059.

Hammersley, M. (2005) *Is the evidence-based practice movement doing more good than harm? Reflections on Iain Chalmers' case for research-based policy making and practice*. Evidence & Policy: A Journal of Research, Debate and Practice, 1(1), 85-100.

Hanley, N., Dupuy, L. and McLaughlin, E. (2014) *Genuine Savings and Sustainability*. University of St. Andrews: Discussion Papers in Environmental Economics, paper 2014-09.

Hardin, G. (1968) *The tragedy of the commons*. Science, 162 (3859), 1243–1248.

Harper, D. (1987) *Working knowledge: Skill and community in a small shop*. Chicago: University of Chicago Press.

Hart, C. (2011) *Doing a Literature Review: Releasing the Social Science Research Imagination*. London: Sage Publications.

Hartl, B., Hofmann, E., and Kirchler, E. (2016) *Do we need rules for "what's mine is yours"? Governance in collaborative consumption communities*. Journal of Business Research, 69(8), 2756–2763.

Hartley, J. (2005) *Innovation in Governance and Public Services: Past and Present*. Public Money and Management, 25(1), 27–34.

Harvey, D. (1973) *Social justice and the city*. London: Edward Arnold.

Harvey, W.S. (2011) *Strategies for conducting elite interviews*. Qualitative Research, 11(4), 431–441.

Hassink, R., Klaerding, C. and Marques, P. (2014) *Advancing Evolutionary Economic Geography by Engaged Pluralism*. Regional Studies, 48(7), 1295–1307.

Hastings, A., Bailey, N., Gannon, M., Besemer, K. and Bramley, G. (2015) *Coping with the Cuts? The Management of the Worst Financial Settlement in Living Memory*. Local Government Studies 41(4), 601-621.

Hathaway, I. and Muro, M. (2016) *Tracking the gig economy: New numbers*. Washington: Brookings Institution.

Hawley, Z. (2018, Jun 8) *End of an era as Derby's first public library closes after 139 years*. Derby Telegraph, retrieved from https://www.derbytelegraph.co.uk/news/derby-news/derby-central-library-closing-date-1655317.

Hayek, F.A. (1937) *Economics and Knowledge*. Economica, 4, 33-54

Hayek, F.A. (1945) *The Use of Knowledge in Society*. American Economic Review, 35(4), 519–530.

Healey, M. and Healey, R. (2010) *How to conduct a literature search*. In N. Clifford, S. French and G. Valentine (eds) Key Methods in Geography (2nd ed). London: Sage Publications.

Healey, M. and Rawlinson, M. (1993) *Interviewing business owners and managers: A review of methods and techniques*. Geoforum, 24, 339-355.

Healy, S. (2009) *Alternative economies*. In R. Kitchin and N. Thrift (eds) International encyclopedia of human geography. London: Elsevier.

Heckmann, R. (2007) *Delivering Sustainability: Development Control in a Market Economy* (Phd thesis). Scotland: University of Strathclyde.

Hediger, W. (1999) *Reconciling "weak" and "strong" sustainability*. International Journal of Social Economics, 26(7/8/9), 1120–1144.

Heinrichs, H. (2013) *Sharing Economy: A Potential New Pathway to Sustainability*. GAIA: Ecological Perspectives for Science & Society, 22(4), 228–231.

Henten, A.H., and Windekilde, I.M. (2016) *Transaction Costs and the Sharing Economy*. Info: Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media, 18(1), 1–15.

Heylighen, F. (2017) *Towards an intelligent network for matching offer and demand: From the sharing economy to the global brain*. Technological Forecasting and Social Change, 114, 74–85.

Higgins, J.P.T. and Green, S. (2008) *Cochrane Handbook for Systematic Reviews of Interventions*. Chichester: Wiley-Blackwell.

Hill, T.P. (1977) *On goods and services*. Review of Income and Wealth, 23, 315–338.

Hirshon, L., Jones, M., Levin, D., McCarthy, K., Morano, B. and Simon, S. (2014) *Cities, The Sharing Economy and What's Next*. Washington: National League of Cities - Center for City Solutions and Applied Research.

Hobson, K. and Lynch, N. (2016) *Diversifying and de-growing the circular economy: Radical social transformation in a resource-scarce world*. Futures, 82, 15–25.

Hockerts, K. and Wüstenhagen, R. (2010) *Greening Goliaths versus emerging Davids - Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship.* Journal of Business Venturing, 25(5), 481–492.

Hodgson, G.M. (1993) *Economics and Evolution: Bringing Life Back into Economics*. Cambridge: Polity Press.

Hodgson, G.M. (1998) *On the evolution of Thorstein Veblen's evolutionary economics*. Cambridge Journal of Economics, 22(4), 415-431.

Hodgson, G.M. (2004) *Reclaiming Habit for Institutional Economics*. Journal of Economic Psychology, 25(5), 651–660.

Hodgson, G.M. (2006) *What Are Institutions?* Journal of Economic Issues, 40(1), 1–25.

Hodgson, G M. (2012) *Institutional/evolutionary economics and environmental policy*. In G. Marletto (eds) Creating a Sustainable Economy: An institutional and evolutionary approach to environmental policy. Abingdon: Routledge.

Hodson, M. and Marvin, S. (2010) *Can cities shape socio-technical transitions and how would we know if they were?* Research Policy, 39(4), 477-485.

Hong, S., and Vicdan, H. (2016) *Re-imagining the utopian: Transformation of a sustainable lifestyle in ecovillages*. Journal of Business Research, 69(1), 120–136.

Hoogma, R. (2000) *Exploiting Technological Niches: Strategies for Experimental Introduction of Electric Vehicles* (PhD thesis). Enschede: Twente University Press.

Horne, M. and Shirley, T (2009) *Co-production in public services: a new partnership with citizens*. London: Cabinet Office.

Hunter, A. (1995) *Local knowledge and local power: Notes on the ethnography of local community elites*. In R. Hertz and J.B. Imber (eds) Studying elites using qualitative methods. Thousand Oaks, CA: Sage.

Hyde, L. (1983) *The gift: Imagination and the erotic life of property*. New York, NY: Random House.
IFS (2015) *Recent cuts to public spending*. London: Institute for Fiscal Studies. Available at https://www.ifs.org.uk/tools_and_resources/fiscal_facts/public_spending_survey/cuts_to_public_spending

Jackson, T. (2009) *Prosperity without growth?* London: Sustainable Development Commission.

Jacobs, J. (1961) *The Death and Life of Great American Cities*. New York: Random House.

James, W. (1912) *A pluralistic universe. Hibbert Lectures at Manchester College on the present situation in philosophy*. New York: Longmans, Green.

Jesson, J.K., Matheson, L. and Lacey, F.M. (2011) *Doing Your Literature Review: Traditional and Systematic Techniques*. London: Sage Publications.

John, N.A. (2013a) *The social logics of sharing*. The Communication Review, 16(3), 113–131.

John, N.A. (2013b) *Sharing and Web 2.0: The emergence of a keyword*. New Media & Society, 15(2), 167–182.

John, P. (2014) *The Great Survivor: The Persistence and Resilience of English Local Government*. Local Government Studies, 40(5), 687–704.

Johnston, R.J. and Sidaway, J.D. (1979) *Geography & Geographers: Anglo-American Human Geography since 1945 (6th Edition)*. London: Hodder Arnold.

Jüni, P, Altman, D, and Egger, M. (2001) *Systematic reviews in health care: Assessing the quality of controlled clinical trials*. British Medical Journal, 323 (7303), 42-46.

Kahn, M. (1995) *Concepts, definitions, and key issues in sustainable development: the outlook for the future*. Proceedings of the 1995 International Sustainable Development Research Conference, Manchester, 27-28 March. Keynote Paper, 2-13.

Kallis, G. (2011) *In defence of degrowth*. Ecological Economics, 70(5), 873–880.

Kapoor, R. (2014) *Lessons From The Sharing Economy*. Techcrunch, 31 Aug. Available at https://techcrunch.com/2014/08/30/critical-lessons-from-the-sharing-economy

Kathan, W., Matzler, K., and Veider, V. (2016) *The sharing economy: Your business model's friend or foe?* Business Horizons, 59(6), 663–672.

Kemp, R., Rip, A. and Schot, J.W. (2001) *Constructing transition paths through the management of niches*. In R. Garud and P. Karnoe (eds) Path Dependence and Creation. Mahwah, NJ: Lawrence Erlbaum, 269–299.

Kemp, R., Schot, J.W. and Hoogma, R. (1998) *Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management*. Technology Analysis and Strategic Management, 10, 175–196.

Kennedy, J. (2016) *Conceptual boundaries of sharing*. Information, Communication & Society, 19(4), 461–474.

Kenney, M. and Zysman, J. (2016) *The rise of the platform economy*. Issues in Science and Technology, 32(3), 61-69.

Kessler, S. (2016) *Silicon Valley's Problem-Solving Bubble*. Fast Company, 26 Jan. Available at: http://www.fastcompany.com/3055627/silicon-valleys-problem-solving-bubble

Killeen, A. (2015) *The Confluence of Bitcoin and the Global Sharing Economy*. In D.L.K. Cheun (eds) Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data. Amsterdam: Academic Press.

Kincheloe, J.L. (2001) *Describing the bricolage: conceptualizing a new rigor in qualitative research*. Qualitative Inquiry, 7, 679-692.

King, A. (2010) *The odd couple: Margaret Archer, Anthony Giddens and British social theory*. British Journal of Sociology, 61(SUPPL. 1), 253–260.

King, A. (2010) *The odd couple: Margaret Archer, Anthony Giddens and British social theory*. British Journal of Sociology, 61(SUPPL. 1), 253–260.

Kingdon, J. (1984) *Agendas, Alternatives and Public Policies*. New York: Harper Collins.

Kirk, W. (1963) *Problems of Geography*. Geography, 48, 357-71.

Knopf, J.W. (2006) *Doing a literature review*. PS: Political Science & Politics, 39(1), 127–132

Knox, P. and Taylor, P. (1995) *World Cities in a World-System*. London: Routledge.

Kopnina, H. (2017) *Sustainability: new strategic thinking for business*. Environment, Development and Sustainability, 19(1), 27–43.

Korpi, W. and Palme, J. (2003) *New Politics and Class Politics in the Context of Austerity and Globalization: Welfare State Regress in 18 Countries, 1975-95*. American Political Science Review, 97(3), 425–446.

Kuhn, T.S. (1962) *The structure of scientific revolutions*. Chicago: Chicago University Press.

Lamberton, C. (2016) *Consumer Sharing: Collaborative Consumption, from Theoretical Roots to New Opportunities*. In M.I. Norton, D.D. Rucker, and C. Lamberton (eds), The Cambridge Handbook of Consumer Psychology. New York: Cambridge University Press.

Lampinen, A., Huotari, K., and Cheshire, C. (2015) *Challenges to participation in the sharing economy: The Case of Local Online Peer-to-Peer Exchange in a Single Parents' Network*. Interaction Design and Architecture(s), 24(1), 16–32.

Langley, P. and Leyshon, A. (2017) *Platform capitalism: the intermediation and capitalisation of digital economic circulation*. Finance and Society, 3(1), 11–31.

Latouche, S. (2006) *The Bet for De-growth*. Paris: Fayard.

Latour, B. (1993) *We Have Never Been Modern*. Brighton: Harvester Wheatsheaf.

Lebowitz, A., and Trudeau, D. (2016) *Digging in: lawn dissidents, performing sustainability, and landscapes of privilege*. Social & Cultural Geography, 9365(August), 1–26.

Lefebvre, H. (1968) *The Right to the City*. Paris: Anthropos

Lefebvre, H. (1970[2003]) *The Urban Revolution* (R. Bononno, Translated 2003). Minneapolis: University of Minnesota Press.

Lefebvre, H. (1972) *Marxist Thought and the City*. Paris: Casterman.

Lefebvre, H. (1974) *The Production of Space*. Paris: Anthropos.

Lefebvre, H. (1996[2010]) *Writings on Cities* (E. Kofman and E. Lebas, Translated 2010). Oxford: Blackwell.

Leoncini, R. (2016) *Learning-by-failing. An empirical exercise on CIS data*. Research Policy, 45, 376–386.

Levi-Straus, C. (1966) *The Savage Mind (2nd Edition)*. Chicago: University of Chicago Press.

Lewis, A. (2018) *Doing Interdisciplinarity – experiences of researchers in urban sustainability*. Paper presented at the European Association for the Study of Science and Technology conference, Lancaster University, 25-28 July.

Leyshon, A., Lee, R. and Williams, C. (2003) *Alternative economic spaces*. London: Sage.

LGA (2012) *Enterprising councils: Getting the most from trading and charging - 2012 edition*. London: Local Government Association.

LGA (2018) *Local government funding: Moving the conversation on*. London: Local Government Association. Available at https://www.local.gov.uk/sites/default/files/documents/5.40_01_Finance%20publication_WEB_0.pdf

Light, A. and Miskelly, C. (2015) *Sharing Economy vs Sharing Cultures? Designing for social, economic and environmental good*. Interaction Design and Architectures Journal, (24), 49–62.

Limerick, B., Burges-Limerick, T. and Grace, M. 1996) *The politics of interviewing: power relations and accepting the gift*. Qualitative Studies In Education, 9(4), 449-460.

Liston, B. (2016) *Uber teams with Florida city on public transit test*. Reuters, Mar 3. Available at: http://www.reuters.com/article/us-uber-tech-subsidies-idUSKCN0W52LQ.

Livingston, D. (1992) *The Geographical Tradition*. Oxford: Blackwell Publishing.

Lobinger, K. (2015). Photographs as things – photographs of things: A texto-material perspective on photo-sharing practices. Information, Communication & Society, 19(4), 475–488.

Longhurst, R. (2011) *Semi-structured interviews and focus groups*. In N. Clifford, S. French and G. Valentine (eds) Key Methods in Geography (second edition). London: Sage Publications.

Lorenz, C. (1989) *The Rise and Fall of Business Fads*. Financial Times, 24 Jun, p.24.

Lorenz, S., Berman, R., Dixon, J. and Lebel, S. (2014) *Time for a systematic review: A response to Bassett and Fogelman's "Déjà vu or something new? The adaptation concept in the climate change literature."* Geoforum, 51, 252–255.

Lougher, G., and Kalmanowicz, S. (2015). EU Competition Law in the Sharing Economy. Journal of European Competition Law & Practice, 1–16.

Lowndes, V. and Pratchett, L. (2012) *Local Governance under the Coalition Government: Austerity, Localism and the "Big Society".* Local Government Studies, 38(1), 21–40.

LUCAS (undated) *Sustaining Urban Habitats: An Interdisciplinary Approach*. Nottingham: Laboratory for Urban Complexity and Sustainability. Available at https://www.nottingham.ac.uk/research/groups/lucas/research/sustaining-urban-habitats-an-interdisciplinary-approach.aspx.

Luckner, N., Fitzpatrick, G., Werner, K., and Subasi, Ö. (2015) *Setting up and running a sharing service: An organisational perspective*. Interaction Design and Architecture(s), 24(1), 63–80.

Luke, T. (2003) *Codes, collectivities, and commodities: rethinking global cities as megalogistical spaces*. In L. Krause and P. Petro (eds), Global Cities: Cinema, Architecture, and Urbanism in a Digital Age. New Jersey: Rutgers University Press.

Lyall, C. and Fletcher, I. (2013) *Experiments in interdisciplinary capacity-building: The successes and challenges of large-scale interdisciplinary investments*. Science and Public Policy, 40(1), 1–7.

MacKinnon, D., Cumbers, A., Pike, A., Birch, K. and McMaster, R. (2009) *Evolution in economic geography: Institutions, political economy, and adaptation*. Economic Geography, 85(2), 129– 150.

MacLure, M. (2002) '*Clarity bordering on stupidity': where's the quality in systematic review?* Journal of Education Policy, 20(4), 393-416.

Malin, B. J., and Chandler, C. (2016) *Free to Work Anxiously Splintering Precarity Among Drivers for Uber and Lyft*. Communication, Culture and Critique, 1–19.

Marletto, G. (2012) *An institutional / evolutionary framework of economic change*. In G. Marletto (eds) Creating a Sustainable Economy: An institutional and evolutionary approach to environmental policy. Abingdon: Routledge.

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

Martin, C J., Upham, P., and Budd, L. (2015) *Commercial orientation in grassroots social innovation: Insights from the sharing economy*. Ecological Economics, 118, 240–251.

Martin, E., Shaheen, S.A. and Lidicker, J. (2010) *Impact of Carsharing on Household Vehicle Holdings*. Transportation Research Record: Journal of the Transportation Research Board, 2143, 150–158.

Marx, K. (1858[1973]) *Grundrisse.* London: Penguin Books / New Left Review

Maskell, P. (2001) *Towards a knowledge-based theory of the geographical cluster*. Industrial and Corporate Change, 10(4), 921–943

Matzler, K., Veider, V. and Kathan, W. (2015) *Adapting to the Sharing Economy*. MIT Sloan Management Review, 56(2), 71–77.

Mauss, M. (1954) *The gift: Forms and functions of exchange in archaic societies*. London: Psychology Press.

Mauthner, N.S., and Doucet, A. (2003) *Reflexive Accounts and Accounts of Reflexivity in Qualitative Data Analysis*. Sociology, 37(3), 413–431.

Maxwell, J.A. (2004) *Reemergent scientism, postmodernism, and dialogue across differences*. Qualitative Inquiry, 10(1), 35–41.

McCracken, G. (1988) *The Long Interview*. Newberry Park, CA: Sage.

McDermott, E. and Graham, H. (2005) *Resilient young mothering: Social inequalities, late modernity and the 'problem' of 'teenage' motherhood*. Journal of Youth Studies, 8(1), 59–79.

McDowell, L. (2010) *Interviewing: Fear and liking in the field*. In D. DeLyser, S. Herbert, S.C. Aitken, M.A. Crang, and L. McDowell (eds), The SAGE Handbook of Qualitative Geography (1st edition). London: SAGE.

McIntyre, K., and Ortiz, J. A. (2015) *Multinational Corporations and the Circular Economy: How Hewlett Packard Scales Innovation and Technology in Its Global Supply Chain*. In R. Clift and A. Druckman (eds) Taking Stock of Industrial Ecology. Springer International Publishing.

McNeill, D. (2016) *Governing a city of unicorns: technology capital and the urban politics of San Francisco*. Urban Geography, 37(4), 1–20.

Meadows, D., Meadows, D.L., Randres, J. and Behrens III, W.W. (1972) *The Limits To Growth: A Report For The Club Of Rome´s Project on the Predicament Of Mankind.* New York :Universe Books

Megaw, N (2016) *Uber expansion leaves taxi industry in urgent need of a lift*. Financial Times, 16 May. Available at https://www.ft.com/content/c4ded228-1910-11e6-bb7d-ee563a5a1cc1

Merrick, R. (2019) *Sajid Javid announces 'end of austerity' with biggest public spending boost for 15 years*. The Independent, Sept 4. Available at https://www.independent.co.uk/news/uk/politics/sajid-javid-spending-review-austerity-brexit-nhs-education-police-funding-a9091601.html

Merrifield, A. (2006) *Henri Lefebvre: a critical introduction*. New York: Routledge.

Merrifield, A. (2013) *The urban question under planetary capitalism*. International Journal of Urban and Regional Research, 37, 909–922.

Metcalfe, J.S. (1998) *Evolutionary Economics and Creative Destruction*. London: Routledge.

Mikecz, R. (2012) *Interviewing Elites: Addressing Methodological Issues*. Qualitative Inquiry, 18(6), 482-493.

Mikhalkina, T. and Cabantous, L. (2015) *Business model innovation: How iconic business model emerges*. Academy of Management Proceedings, 33, 59-95

Miles, M.B. and Huberman, A.M. (1994) *Qualitative Data Analysis (2nd Edition)*. Thousand Oaks, CA: Sage Publications.

Miller, C. (1995) *In-depth Interviewing by Telephone: Some Practical Considerations*. Evaluation and Research in Education, 9(1), 29–38.

Miller, S. R. (2016) *First principles for regulating the sharing economy*. Harvard Journal on Legislation, 53(1), 147–202.

Möhlmann, M. (2015) *Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again*. Journal of Consumer Behaviour, 14, 193–207.

Moore, G.C. and Benbasat, I. (1991) *Development of an instrument to measure the perceptions of adopting an information technology innovation*. Information Systems Research, 2(3), 192-222.

Moore, M. H. (1995) *Creating Public Value: Strategic Management in Government*. Cambridge, MA: Harvard University Press.

Morgan, B. and Kuch, D. (2015) *Radical Transactionalism: Legal Consciousness, Diverse Economies, and the Sharing Economy*. Journal of Law and Society, 42(4), 556–587.

Morioka, S. N. and Carvalho, M. M. de. (2016) *A Systematic Literature Review Towards a Conceptual Framework for Integrating Sustainability Performance into Business*. Journal of Cleaner Production, 136, 1–28.

Morozov, E. (2013) *The ‘‘sharing economy” undermines workers’ rights*. The Financial Times, 14 Oct. Available at https://www.ft.com/content/92c3021c-34c2-11e3-8148-00144feab7de

Morphet, J. (2017) *Is austerity the mother of invention? How local authorities are providing housing again*. London School of Economics, Available at http://blogs.lse.ac.uk/politicsandpolicy/how-local-authorities-are-providing-housing-again/

Mulholland, H. and Watt, N. (2010) *Spending review 2010: George Osborne announces extra £7bn of welfare cuts*. The Guardian, 20 Oct. Available at https://www.theguardian.com/politics/2010/oct/20/spending-review-2010-osborne-cuts

Mulrow, C.D. (1994) *Systematic reviews: Rationale for systematic reviews*. British Medical Journal, 309, 597–9.

Munger, M.C. (2016) *Tomorrow 3.0: The Sharing Economy*. The Independent Review, 20(3), 391–395.

Musson, S. (2010) *The geography of UK government finance: tax, spend and what lies in between*. In N.M. Coe and A. Jones (eds) The Economic Geography of the UK, 79-90. London: Sage Publications.

NAO (2014) *The impact of funding reductions on local authorities*. London: National Audit Office. Available at https://www.nao.org.uk/report/the-impact-funding-reductions-local-authorities/

Nastar, M. (2014) *What drives the urban water regime? An analysis of water governance arrangements in Hyderabad, India*. Ecology & Society, 19(2).

Ndubisi, N. O., Ehret, M., and Wirtz, J. (2016) *Relational Governance Mechanisms and Uncertainties in Nonownership Services*. Psychology & Marketing, 33(4), 250–266.

Nelson, C., Treichler, P.A. and Grossberg, L (1992) *Cultural studies: An introduction*. In L. Grossberg, C. Nelson and P.A. Treichler (eds) Cultural Studies. New York: Routledge.

Nelson, R.R. and Winter, S.G. (1982) *An evolutionary theory of economic change*. Cambridge, MA: The Belknap Press.

Netter, S. (2016) *Availability Cascades and the Sharing Economy – A Critique of Sharing Economy Narratives*. In A. Genus (eds) Sustainable Consumption. London: Kingston University.

Newman, J. (2017) *Deconstructing the debate over evidence-based policy*. Critical Policy Studies, 11(2), 211-226.

Norgaard, R.B. (1984) *Coevolutionary development potential*. Land Economics, 60, 160–173.

Norgaard, R.B. (1994) *Development betrayed: the end of progress and a coevolutionary revisioning of the future*. London: Routledge.

Northall, P (2017) *Categories and classifications in the 'sharing economy': A systematic review*. University of Nottingham, manuscript in preparation.

Northall, P. (2019) *Platform public-sector? Using sharing platforms to deliver public services and social value in English cities under austerity*. University of Nottingham, manuscript in preparation.

O'Neill, K.J. and Gibbs, D.C. (2014) *Towards a sustainable economy? Socio-technical transitions in the green building sector*. Local Environment, 19(6), 572–590.

OBR (2019) *A brief guide to the public finances*. London: Office for Budget Responsibility. Available at https://obr.uk/forecasts-in-depth/brief-guides-and-explainers/public-finances/

Ogilvie, D., Egan, M., Hamilton, V., and Petticrew, M. (2004) *Promoting walking and cycling as an alternative to using cars: What works? A systematic review*. British Medical Journal, 329, 763.

ONS (2017) *Business demography, UK: 2017 - Change in the number of UK businesses broken down by sector of the economy*. *Office for National Statistics*. Available at https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/businessdemography/2017.

Oram, A. (2001) *Peer-to-peer: Harnessing the Benefits of a Disruptive Technology*. California: O'Reilly Media.

Osborne, S. P., Radnor, Z. and Strokosch, K. (2016) *Co-Production and the Co-Creation of Value in Public Services: A suitable case for treatment?* Public Management Review, 18(5), 639–653.

Ostrander, S.A. (1993) *Surely you're not in this just to be helpful. Access, rapport, and interviews in three studies of elites*. Journal of Contemporary Ethnography, 22(1), 7–27.

Ostrom, E. (1990) *Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge: Cambridge University Press.

Owyang, J. (2016) *The Collaborative Economy Honeycomb*. San Francisco: Crowd Companies.

Pan, M.L. (2004) *Preparing Literature Reviews (2nd Edition).* Glendale, CA: Pyrczak Publishing.

Pearce, D. and Atkinson, G. (1993) *Capital theory and the measurement of sustainable development: an indicator of "weak" sustainability*. Ecological Economics, 8, 103–108.

Peck, J. (2012) Austerity urbanism. City, 16(6), 626-655.

Pera, R., Viglia, G., and Furlan, R. (2016) *Who Am I? How Compelling Self-storytelling Builds Digital Personal Reputation*. Journal of Interactive Marketing, 35, 44–55.

Pestoff, V. and Brandsen, T. (2007) *Co-production: the third sector and the delivery of public services*. London: Routledge.

Petticrew, M. and Roberts, H. (2006) *Systematic Reviews in the Social Sciences: A Practical Guide*. Oxford: Blackwell Publishing.

Pettigrew, A. M. (1997) *The Double Hurdles for Management Research, Advancement in Organizational Behaviour*. Aldershot: Ashgate.

Petts, J., Owens, S. and Bulkeley, H. (2008) *Crossing boundaries: Interdisciplinarity in the context of urban environments*. Geoforum, 39, 593–601

Pierson, P. (1998*) Irresistible forces, immovable objects: Post-industrial welfare states confront permanent austerity*. Journal of European Public Policy, 5(4), 539–560.

Pisano, P., Pironti, M., and Rieple, A. (2015) *Identify innovative business models: Can innovative business models enable players to react to ongoing or unpredictable trends?* Entrepreneurship Research Journal, 5(3), 181–199.

Pittaway, L., Robertson, M., Munir, K., Denyer, D. and Neely, A. (2004) *Networking and innovation: a systematic review of the evidence*. International Journal of Management Reviews, 5/6(3&4), 137–168.

Porter, M. (2003) *The Economic Performance of Regions*. Regional Studies, 37, 549-578

Prahalad, C.K. and Ramaswamy, V. (2004) *The Future of Competition: Co-creating Unique Value with Customers*. Cambridge, MA: Harvard Business School Press.

Price, J.A. (1975) *Sharing: the integration of intimate economies*. Anthropologica 17, 3–27

Prime Minister's Office (2010) *Government launches Big Society programme.* Prime Minister's Office, 18 May. Available at https://www.gov.uk/government/news/government-launches-big-society-programme--2.

Purvis, B., Mao, Y. and Robinson, D. (2019) *Three pillars of sustainability: in search of conceptual origins*. Sustainability Science, 14(3), 681-695.

Puschmann, T. and Alt, R. (2016) *Sharing Economy*. Business & Information Systems Engineering, 58(1), 93–99.

Putterman and Kroszner (1997) *The Economic Nature of the Firm (2nd Ed)*. Cambridge: Cambridge University Press.

PwC (2014) *The sharing economy - Sizing the revenue opportunity*. London: PriceWaterhouseCoopers, Available at http://www.pwc.co.uk/issues/megatrends/collisions/sharingeconomy/the-sharing-economy-sizing-the-revenue-opportunity.html

PwC (2015*) The sharing economy: how will it disrupt your business?* London: PricewaterhouseCoopers. Available at http://pwc.blogs.com/files/sharing-economy-final_0814.pdf

Qian, H., Acs, Z.J. and Stough, R.R. (2013*) Regional systems of entrepreneurship: The nexus of human capital, knowledge and new firm formation*. Journal of Economic Geography, 13(4), 559–587.

Rapley, T. (2011) *Some Pragmatics of Data Analysis*. In D. Silverman (eds) *Qualitative Research*. London: Sage Publications.

Rashman, L., Withers, E. and Hartley, J. (2009) *Organizational learning and knowledge in public service organizations: A systematic review of the literature*. International Journal of Management Reviews, 11(4), 463–494.

Reiner, R.C., Perkins, T.A., Barker, C.M., Niu, T., Fernando Chaves, L. et al (2013) *A systematic review of mathematical models of mosquito-borne pathogen transmission: 1970 – 2010*. Journal of the Royal Society Interface, 10, 20120921.

Rice, S. (2011) *Sampling in geography*. In N. Clifford, S. French and G. Valentine (eds) Key methods in geography (second edition). London: Sage Publications Ltd.

Richard, B., and Cleveland, S. (2016) *The future of hotel chains: Branded marketplaces driven by the sharing economy*. Journal of Vacation Marketing, 22(3), 1–10.

Richards, D. (1996) *Elite interviewing: approaches and pitfalls*. Politics, 16(3), 199–204.

Richards, K. (1996) *Samples and cases: generalisation and explanation in geomorphology*. In B.L. Rhoads and C.E. Thorn (eds) The scientific nature of geomorphology. Chichester: John Wiley & Sons.

Richardson, L. (2015) *Performing the sharing economy*. Geoforum, 67, 121–129.

Rifkin, J. (2000) *The Age of Access: The New Culture of Hypercapitalism, where all of life is a paid-for experience*. New York: J.P. Tarcher/Putnam.

Rip, A. and Kemp, R. (1998) *Technological change*. In S. Rayner and E. Malone (eds) Human choices and climate change, Volume 2. Columbus, OH: Batelle.

Rittel, H.W.J. and Webber, M.M. (1973) *Dilemmas in a General Theory of Planning*. Policy Sciences, 4, 155–169.

Ritzer, G. and Jurgenson, N. (2010) *Production, consumption, prosumption: The nature of capitalism in the age of the digital 'prosumer'*. Journal of Consumer Culture, 10(13), 13-36.

Ritzer, G. (1993) *The McDonaldization of Society*. California: Pine Forge Press.

Roberts, S. (2010) *The role of local authorities in galvanizing action to tackle climate change: a practitioner's perspective*. In M. Peters, S. Fudge, and T. Jackson (eds), Low Carbon Communities: Imaginative Approaches to Combatting Climate Change Locally. Cheltenham: Edward Elgar Ltd.

Robinson, J. (2006) *The Ordinary City: Between Modernity and Development*. London: Routledge.

Rochet, J.-C. and Tirole, J. (2003) *Platform Competition in Two-Sided Markets*. Journal of the European Economic Association, 1(4), 990–1029.

Roh, T. H. (2016) *The Sharing Economy: Business Cases of Social Enterprises Using Collaborative Networks*. Procedia Computer Science, 91, 502–511.

Roome, N. and Louche, C. (2016) *Journeying Toward Business Models for Sustainability: A Conceptual Model Found Inside the Black Box of Organisational Transformation*. Organization and Environment, 29(1), 11–35.

Roy, A. (2009) *The 21st-century metropolis: New geographies of theory*. Regional Studies 43, 819–830.

Safarzynska, K. (2012) *Agency and economic change*. In G. Marletto (eds) Creating a Sustainable Economy: An institutional and evolutionary approach to environmental policy. Abingdon: Routledge.

Sahakian, M. (2015) *The Social and Solidarity Economy: Why Is It Relevant to Industrial Ecology?* In R. Clift and A. Druckman (eds) Taking Stock of Industrial Ecology. Springer International Publishing.

Santana, J., and Parigi, P. (2015) *Risk Aversion and Engagement in the Sharing Economy*. Games, 6(4), 560–573.

Saraf, N. (2015) *Learning from Future Cities Demonstrators*. InnovateUK, 29 Oct. Available at https://innovateuk.blog.gov.uk/2015/10/29/learning-from-future-cities-demonstrators/.

Sassen, S. (1991) *The Global City: New York, London, Tokyo*. Princeton, NJ: Princeton University Press.

Sassen, S. (1994) *Cities in a World Economy*. Thousand Oaks, California: Pine Forge Press.

Saunders, M., Lewis, P. and Thornhill, A. (2009) *Research Methods for Business Students (5th ed)*. Harlow: Pearson Education.

Sayer, A. (1992) *Method in Social Science: A Realist Approach* (Second Ed). London: Routledge.

Schirato, T. and Webb, J. (2002) *Bourdieu's Notion of Reflexive Knowledge*. Social Semiotics, 12(3), 255-268.

Schmid, C. (2018) *Journeys through planetary urbanization: decentering perspectives on the urban*. Environment and Planning D: Society and Space, 36(3), 591-610.

Schor, J.B. and Fitzmaurice, C. (2015) *Collaborating and connecting: the emergence of the sharing economy*. In L.A. Reisch and J. Thøgersen (eds) Handbook of Research on Sustainable Consumption. Cheltenham, UK: Edward Elgar.

Schor, J.B., Fitzmaurice, C., Carfagna, L.B. and Attwood-Charles, W. (2016) *Paradoxes of openness and distinction in the sharing economy*. Poetics, 54, 66–81.

Schor, J. and Walker, E. (2011) *The Sharing Economy*. Fast Company, 5(11), 24–28.

Schot, J. and Steinmueller, W.E. (2018) *Three frames for innovation policy: R&D, systems of innovation and transformative change*. Research Policy, 47(9), 1554-1567.

Schumpeter, J.A. (1934) *The theory of economic development*. Cambridge, MA: Harvard University Press.

Schumpeter, J.A. (1942) *Capitalism, Socialism and Democracy*. London: George Allen & Unwin.

Schumpeter, J.A. (1954) *History of Economic Analysis*. New York: Oxford University Press.

Scott, A.J. and Storper, M. (2015) *The nature of cities: The scope and limits of urban theory*. International Journal of Urban Theory, 39, 1–15.

Scott, W.R. (2008) *Institutions and organizations: ideas and interests (3rd ed)*. Los Angeles: Sage Publications.

Searcy, C. (2012) *Corporate sustainability performance measurement systems: a review and research agenda*. Journal of Business Ethics, 107(3), 239-253.

Sedgwick, E.K. and Frank, A. (1995) *Shame in the Cybernetic Fold: Reading Silvan Tomkins*. Critical Inquiry, 21(2), 496-522.

Shaheen, S.A. (2016) *Mobility and the sharing economy*. Transport Policy, 51, 141–142.

Shaheen, S.A., Chan, N.D., and Gaynor, T. (2016) *Casual carpooling in the San Francisco Bay Area: Understanding user characteristics, behaviors, and motivations*. Transport Policy, 51, 1–9.

Shemilt, I., Mugford, M., Vale, L., Marsh, K., Donaldson, C. and Drummond, M. (2010) *Evidence synthesis, economics and public policy*. Research Synthesis Methods, 1(2), 126–135.

Shenton, A. and Hayter, S. (2004) *Strategies for gaining access to organisations and informants in qualitative studies*. Education for Information, 22, 223-231.

Sheppard, E., Gidwani, V., Goldman, M., Leitner, H., Roy, A. and Maringanti, A. (2015) *Introduction: Urban revolutions in the age of global urbanism*. Urban Studies, 52(11), 1947-1961.

Shield, A. (2018) *Gay Immigrants and Grindr: Revitalizing Queer Urban Spaces?* International Journal of Urban and Regional Research. Available at http://www.ijurr.org/spotlight-on-overview/disruptive-technologies/revitalizing-queer-urban-spaces.

Silverman, D. (1993) *"Beginning Research": Interpreting qualitative data - Methods for analysing talk, text and interaction*. London: Sage Publications.

Silverman, D. (2004) *Qualitative Research: Theory, Method and Practice*. London: Sage Publications.

Silverman, D. (2011) *Qualitative Research*. London: Sage Publications.

Simon, H. (1955) *A behavioral model of rational choice*. Quarterly Journal of Economics 69, 99–118.

Simon, H. (1956) *Rational choice and the structure of the environment*. Psychological Review 63, 129–38.

Simon, H. (1957) *Models of man*. New York: Wiley.

Sleater, L. (2018) *Councils under financial strain*. BBC News, 7 Sep. Available at https://www.bbc.co.uk/news/uk-politics-45435368

Smith, A., Stirling, A. and Berkhout, F. (2005) *The governance of sustainable socio-technical transitions*. Research Policy, 34, 1491–1510.

Smith, A., Voß, J-P. and Grin, J. (2010*) Innovation studies and sustainability transitions: The allure of the multi-level perspective and its challenges*. Research Policy, 39(4), 435-448.

Söderbaum, P. (2008) *Understanding sustainability economics: Towards pluralism in economics*. London: Earthscan.

Söderberg, J. (2016). The cloud factory: Making things and making a living with desktop 3D printing. Culture and Organization, 1–17, DOI: 10.1080/14759551.2016.1203313.

Solomon, B. (2016) *WeFuel Joins Crowded 'Uber For Gas' Startup Fight*. Forbes, 26 Jan. Available at https://www.forbes.com/sites/briansolomon/2016/01/26/wefuel-joins-crowded-uber-for-gas-startup-fight/#1a400fc25399.

Srnicek, N. (2016) *Platform Capitalism*. Cambridge: Polity Press.

Standing, G. (2011). The Precariat: The New Dangerous Class. London: Bloomsbury Academic.

Starke, P. (2006) *The politics of welfare state retrenchment: A literature review*. Social Policy and Administration, 40(1), 104–120.

Starke, P. (2006) *The politics of welfare state retrenchment: A literature review*. Social Policy and Administration, 40(1), 104–120.

Stephany, A. (2015). The Business of Sharing: Collaborative Consumption and Making it in the New Sharing Economy. Basingstoke, UK: Palgrave Macmillan.

Stern, N. (2006) *The Economics of Climate Change: The Stern Review*. London: HM Treasury.

Stiglitz J.E. (2002) *Globalization and its Discontents*. New York: WW Norton.

Stiglitz, J.E., Sen, A. and Fitoussi, J.P. (2009) *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Paris: Commission on the Measurement of Economic Performance and Social Progress.

Stoker, G. (2012) *The Political Environment and Localism: What Future?* In S. Graham (eds) Housing 2020: Six Views of the Future for Housing Associations. Coventry: Orbit Group.

Storper, M. (1997) *The Regional World*. London: Guilford.

Storper, M. and Scott, A.J. (2016) *Current debates in urban theory: A critical assessment*. Urban Studies, 53(6), 1114–1136

Sturges, J.E. and Hanrahan, K.J. (2004) *Comparing telephone and face-to-face qualitative interviewing: a research note*. Qualitative Research, 4(1), 107–118.

Summers, D. (2009) *David Cameron warns of 'new age of austerity'*. The Guardian, 26 Apr. Available at https://www.theguardian.com/politics/2009/apr/26/david-cameron-conservative-economic-policy1.

Täuscher, K. and Laudien, S. (2018) *Understanding platform business models: A mixed methods study of marketplaces*. European Management Journal, 36(3), 319-329.

Temple, B. and Young, A. (2004) *Qualitative research and translation dilemmas*. Qualitative Research, 4(2), 161-178.

ter Huurne, M., Ronteltap, A., Corten, R. and Buskens, V. (2017) *Antecedents of trust in the sharing economy: A systematic review.* Journal of Consumer Behaviour, 16(6), 485–498.

Teubner, T. and Flath, C. M. (2015) *The Economics of Multi-Hop Ride Sharing: Creating New Mobility Networks Through IS*. Business and Information Systems Engineering, 57(5), 311–324.

TfL (2016) *Private hire regulations review: Part two consultation report*. London: Transport for London.

Theodore, N. and Peck, J. (2001) *Searching for best practice in welfare-to-work: The means, the method and the message*. Policy & Politics, 29(10), 81-94.

Thomas, J. and Harden, A. (2008) *Methods for the thematic synthesis of qualitative research in systematic reviews*. BMC Medical Research Methodology, 8(1), 45.

Thomke, S. (2003) *Experimentation Matters: Unlocking the Potential of New Technologies for Innovation*. Cambridge, MA: Harvard Business School Press.

Thrift, N. (1997) *The rise of soft capitalism*. Cultural Values, 1(1), 29–57.

TIME (2011) *10 Ideas That Will Change the World - Today's Smart Choice: Don't Own. Share*. TIME, 17 Mar. Available at http://content.time.com/time/specials/packages/article/0,28804,2059521_2059717_2059710,00.html.

Toffler, A. (1980) *The Third Wave*. London: Pan Books.

Torgerson, C. (2003) *Systematic Reviews*. New York: Bloomsbury.

Tranfield, D., Denyer, D. and Smart, P. (2003) *Towards a methodology for developing evidence-informed management knowledge by means of systematic review*. British Journal of Management, 14, 207–222.

Tussyadiah, I. P. (2016) *Factors of satisfaction and intention to use peer-to-peer accommodation*. International Journal of Hospitality Management, 55, 70–80.

Tussyadiah, I. P. and Pesonen, J. (2015) *Impacts of Peer-to-Peer Accommodation Use on Travel Patterns*. Journal of Travel Research, October, 1–19.

Uber (undated) *Get A Car - Helping Drivers Lease, Rent, or Buy a Vehicle*. Available at https://www.uber.com/en-GB/drive/vehicle-solutions/.

UN (2000) *United Nations Millennium Declaration*. New York: United Nations. Available at https://undocs.org/A/RES/55/2.

UN (2015) *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York: United Nations. Available at https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf.

UN-DESA (2018) *World Urbanization Prospects: The 2018 Revision*. New York: United Nations - Department of Economic and Social Affairs.

Unruh, G. (2002) *Escaping carbon lock in*. Energy Policy, 30(4), 317–325.

Upward, A. and Jones, P. (2016) *An Ontology for Strongly Sustainable Business Models: Defining an Enterprise Framework Compatible with Natural and Social Science*. Organization and Environment, 29(1), 97–123.

Urbano, D. and Alvarez, C. (2014) *Institutional dimensions and entrepreneurial activity: an international study*. Small Business Economics, 42, 703–716.

Vaismoradi, M., Turunen, H., and Bondas, T. (2013) *Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study*. Nursing and Health Sciences, 15(3), 398–405.

van den Bergh, J.C.J.M. and Bruinsma, F.R. (2008) *Managing the Transition to Renewable Energy: Theory and Practice from Local, Regional and Macro Perspectives*. Cheltenham: Edward Elgar.

van den Bergh, J.C.J.M. and Stagl, S. (2003) *Coevolution of economic behaviour and institutions: Towards a theory of institutional change*. Journal of Evolutionary Economics, 13(3), 289–317.

van der Graaf, S., and Ballon, P. (2019) *Navigating platform urbanism*. Technological Forecasting and Social Change, 142(C), 364-372.

van der Zee, R. (2016) The 'Airbnb effect': is it real, and what is it doing to a city like Amsterdam? The Guardian, 6 October.

van Doorn, N. (2017) *Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy*. Information Communication and Society, 20(6), 898-914.

van Nuenen, T. (2016). The production of locality on peer-to-peer platforms. Cogent Social Sciences, 2(1), 1–16.

Vasagar, J. (2014) *Uber hit with nationwide ban in Germany*. The Financial Times, 2 Sep. Available at: http://www.ft.com/cms/s/0/c64c4b42-3279-11e4-a5a2-00144feabdc0.html#slide0.

Veblen, T. (1898) *Why is Economics not an Evolutionary Science*. Quarterly Journal of Economics, 12(4), 373-397.

Veblen, T. (1914) *The instinct of Workmanship and the State of the Industrial Arts*. New York: August Kelley.

Volmink, J., Siegfried, N., Robertson, K. and Gülmezoglu, A.M. (2004) *Research synthesis and dissemination as a bridge to knowledge management: the Cochrane*

Collaboration. Bulletin of the World Health Organization: The International Journal of Public Health, 82(10), 778-783.

von der Porten, S. and de Loë, R. C. (2014) *How Collaborative Approaches to Environmental Problem Solving View Indigenous Peoples: A Systematic Review*. Society & Natural Resources, 27(10), 1040–1056.

Walter, S.G. and Block, J.H. (2016) *Outcomes of entrepreneurship education: An institutional perspective*. Journal of Business Venturing, 31, 216–233.

Wang, Y. and Beydoun, M.A. (2007) *The obesity epidemic in the United States - Gender, age, socioeconomic, Racial/Ethnic, and geographic characteristics: A systematic review and meta-regression analysis*. Epidemiologic Reviews, 29, 6-28.

Ward, K. and Jones, M (1999) *Researching local elites: reflexivity, 'situatedness' andpolitical-temporal contingency*. Geoforum, 30(4), 301-312.

Weber, T.A. (2014) *Intermediation in a Sharing Economy: Insurance, Moral Hazard, and Rent Extraction*. Journal of Management Information Systems, 31(3), 35–71.

Weber, T.A. (2016) *Product Pricing in a Peer-to-Peer Economy*. Journal of Management Information Systems, 33(2), 573–596.

WeFuel (undated) *About Us*. Available at: http://www.wefuel.com/Public/#aboutus.

Weinstein, D. and Weinstein, M.A. (1991) *Georg Simmel: Sociological flaneur bricoleur*. Theory, Culture & Society, 8, 151-168.

Wekerle, G. R., and Classens, M. (2015) *Food production in the city: (re)negotiating land, food and property*. Local Environment, 20(10), 1175–1193.

Whitehead, M. (2007) *Spaces of Sustainability: Geographic Perspectives on the Sustainable Society*. Abingdon: Routledge.

Whitham, M.M. and Clarke, H. (2016) *Getting is Giving: Time Banking as Formalized Generalized Exchange*. Sociology Compass, 10(1), 87–97.

Winder, N., McIntosh, B.S. and Jeffrey, P. (2005) *The Origin Diagnostic and Practical Application of Coevolutionary Theory*. Ecological Economics, 54, 347-361.

Wiskerke, J.S.C. and Van der Ploeg, J.D. (2004) *Seeds of Transition: Essays on Novelty Production, Niches and Regimes in Agriculture*. Assen: Van Gorcum.

Wosskow, D. (2014) *Unlocking the sharing economy: An independent review*. London: Department for Business, Innovation and Skills. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/378291/bis-14-1227-unlocking-the-sharing-economy-an-independent-review.pdf.

Zeffman, H. and Davies, G. (2018) *Three more Tory councils slip into bankruptcy danger zone*. The Times, 9 Mar. Available at https://www.thetimes.co.uk/article/three-more-tory-councils-somerset-norfolk-and-lancashire-slip-into-bankruptcy-danger-zone-z8g8m9vp2

Zervas, G., Proserpio, D. and Byers J.W. (2017) *The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry*. Journal of Marketing Research, 54(5), 687-705.

10
APPENDICES

10 APPENDICES

APPENDIX 1: Email Invitation To Research interviews

Subject: Invitation to Research Interview for University of Nottingham Project

Dear [First Name] [Surname],

I am writing to invite you to be involved in a research project at the University of Nottingham, *Sustaining Urban Habitats*, and to help shape research into the use of new methods of public service delivery. The research explores how to make cities more economically sustainable and focusses on the use of sharing platforms to better, and more efficiently, deliver local public services.

I would very much like to interview you in order to understand what sharing platform activities already exist in your area, and to explore what potential there is for more public services to be delivered in this way, as well as to understand the local priorities and safeguards required. I feel that your position within the local authority gives you an expert view of existing activity as well as an ability to explore future opportunities.

I would be happy to meet you at a time and location of your choosing, and would expect the interview to last around 30 minutes. I have provided more detail regarding the wider project and this specific research on the invitation letter below, and if you are able to take part then please contact me as soon as possible via the contact details below. However, if you are unable to take part in this research I would really appreciate it if you could forward this to a relevant colleague who would be able to take part on your behalf?

Thank you in advance for your help with this research. If you have any questions please do not hesitate to get in touch, and I look forward to hearing from you soon.

Regards,

Phil Northall
University of Nottingham
Laboratory of Urban Complexity & Sustainability
B14, Lenton Hurst

(t) 07834 285 710
(e) **phil.northall@nottingham.ac.uk**
(w) **northall.me**

Laboratory of Urban Complexity & Sustainability
B14, Lenton Hurst
University of Nottingham
University Park
Nottingham
NG7 2RD

Dear Sir/Madam,

RE. Invitation to Research Interview for *Sustaining Urban Habitats* Project

I am conducting research for the Leverhulme Trust funded project, *Sustaining Urban Habitats: An interdisciplinary approach*. This work explores the economic mechanisms that enable more economically sustainable cities, and specifically aims to assess the use of digital platforms and sharing economies to deliver public services.

I am currently undertaking interviews with senior experts within the public sector, and would very much like to speak to you, or a relevant representative of your department, in order to:

- Audit existing sharing platform activities that exist in your area, particularly in relation to the delivery of public services and statutory obligations.
- Identify opportunities where sharing platform activities could be incorporated into the delivery of public services.
- Understand the barriers that may exist to this kind of delivery, or the levers that enabled such delivery.
- Outline the priorities of local authorities, and any measures required to safeguard these priorities and the outcomes for all stakeholders.

The interview will be conducted at a time and venue convenient to yourself. Most interviewees preferred to be interviewed either close to, or in their place of work, and will typically last around 30 minutes. All interviews remain anonymous and unidentifiable, more information on use of data, including ethical outlines and anonymity will be provided separately. If you would be happy to take part please email me on phil.northall@nottingham.ac.uk.

In return for taking part in the research project, I can arrange to send you full copies of, or digests of the key findings from, the research project, and offer you the chance to shape the future direction of the ongoing research.

Many thanks in advance for your help and I look forward to meeting you.

Kind regards,



Phil Northall

Laboratory of Urban Complexity & Sustainability (LUCAS)
DD: 07834 285 710
E: phil.northall@nottingham.ac.uk
W: www.nottingham.ac.uk/research/groups/lucas/index.aspx

APPENDIX 2: Participant Information Sheet



LEVERHULME TRUST

Participant Information Sheet

Title of Study: *Sustaining Urban Habitats: An interdisciplinary approach*
Name of Researcher: Phil Northall
School of Researcher: School of Geography

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. One of our team will go through the information sheet with you but feel free to consult with others about the study and do not hesitate to ask us if there is anything that is not clear.

What is the purpose of the study?

- Audit existing sharing platform activities that exist in your area, particularly in relation to the delivery of public services and statutory obligations.
- Identify opportunities where sharing platform activities could be incorporated into the delivery of public services.
- Understand the barriers that may exist to this kind of delivery, or the levers that enabled such delivery.
- Outline the priorities of local authorities, and any measures required to safeguard these priorities and the outcomes for all stakeholders.

Why have I been invited?

You are being invited to take part because you are in a senior role within a UK local authority, and your position gives you an expert view of the existing activities and potential opportunities related to the above mentioned purpose of the study.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. This would not affect your legal rights.

What will happen to me if I take part?

The research interview is designed to tease out expert knowledge related to the above mentioned purpose of the study. They will be semi-structured around the three major areas of focus, 1) existing activities and their enablers; 2) opportunities and their barriers; and 3) local priorities and safeguards. The interview will be arranged at a time and place of your choosing and will last around 30 minutes.

Will the interview be recorded using audio/visual equipment?

The researcher will take notes throughout the interview and in order to facilitate the analysis of the interviews they will be recorded using an audio recording device. If you are not happy to be recorded in this way, please discuss this with the researcher beforehand and do not initial this aspect of the consent form (section 4). The researcher will then ensure that no audio/visual recording devices are used.

What are the possible benefits of taking part?

After the interview is completed the researcher will compile the data with interviews with other senior local authority actors to produce a handbook for the use of sharing platforms in public service delivery, along with a best practice guide of existing activity. The research will also be written up for academic publication. Full copies, or digests of the key findings, can be provided, and you can also be included in further research into this topic – please provide consent for this further research by initialling section 6 of the consent form.

What are the possible disadvantage and risks of taking part?

This project will not expose the research or the participants to any risk of physical or emotional harm. To minimise and manage risk, the researchers will keep data and information on protected drives and hardware at the University that only project members will have access to. Participants also reserve the right to refrain from discussing any information or topic if they so choose.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. The researchers contact details are given at the end of this information sheet. If you remain unhappy and wish to complain formally, you can do this by contacting the School of Geography's Research Ethics Officer, Dr Matthew Jones, on 0115 846 8406, or by email at **matthew.jones@nottingham.ac.uk**.

Will my taking part in the study be kept confidential?

We will follow ethical and legal practice and all information about you will be handled in confidence.

If you join the study, some parts of the data collected for the study will be looked at by authorised persons from the University of Nottingham who are organising the research. They may also be looked at by authorised people to check that the study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

All information which is collected about you during the course of the research will be kept **strictly confidential**, stored in a secure and locked office, and on a password protected database.

Your contact information will be kept for a year after the end of the study so that we are able to contact you about the findings of the study (unless you advise us that you do not wish to be contacted). All research data will be kept securely for 7 years. After this time your data will be disposed of securely. During this time all precautions will be taken by all those involved to maintain your confidentiality, only members of the research team will have access to your data.

What will happen if I don't want to carry on with the study?

Your participation is voluntary and you are free to withdraw at any time, without giving any reason, and without your legal rights being affected. If you withdraw then the information collected so far cannot be erased and this information may still be used in the project analysis.

Who is organising and funding the research?

This research is being organised by the University of Nottingham and is being funded by the Leverhulme Trust.

Who has reviewed the study?

All research is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the School of Geography Research Ethics Committee.

Further information and contact details

Researcher: Phil Northall
tel: 07834 285 710
email: **phil.northall@nottingham.ac.uk**

address:
Laboratory of Urban Complexity & Sustainability (LUCAS)
B14, Lenton Hurst
University Park
Nottingham
NG7 2QL

APPENDIX 3: Participant Consent Form

University of Nottingham
UK | CHINA | MALAYSIA

LEVERHULME TRUST

CONSENT FORM

Title of Study: *Sustaining Urban Habitats: An interdisciplinary approach*

Name of Researcher: Phil Northall

Name of Participant: ← Insert Name

Initial Boxes

1. I confirm that I have read and understand the Participant Information Sheet titled *Sustaining Urban Habitats: An interdisciplinary approach* and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without my legal rights being affected. I understand that should I withdraw then the information collected so far cannot be erased and that this information may still be used in the project analysis. ☐

3. I understand that relevant sections of my data collected in the study may be looked at by authorised individuals from the University of Nottingham and the research group where it is relevant to my taking part in this study. I give permission for these individuals to have access to these records and to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential. ☐

4. I understand that the interview will be recorded using an audio recording device, and that anonymous direct quotes from the interview may be used in the study reports. ☐

5. I agree to take part in the above study. ☐

6. I agree to be contacted regarding any further research related to this project. ☐

← Print, date and sign

Name of Participant	**Date**	**Signature**
Phil Northall		
Name of Person taking consent	**Date**	**Signature**

APPENDIX 4: List Of Papers Included In The Systematic Review

Ambrosino, G., Nelson, J.D., Boero, M. and Pettinelli, I. (2016) *Enabling intermodal urban transport through complementary services: From Flexible Mobility Services to the Shared Use Mobility Agency: Workshop 4. Developing inter-modal transport systems*. Research in Transportation Economics, 59, 179–184.

Aptekar, S. (2016) *Gifts Among Strangers: The Social Organization of Freecycle Giving*. Social Problems, 63, 266–283.

Aznar, J., Sayeras, J., Galiana, J. and Rocafort, A. (2016) *Sustainability Commitment, New Competitors' Presence, and Hotel Performance: The Hotel Industry in Barcelona*. Sustainability, 8(8), 755.

Barta, K. and Neff, G. (2016) *Technologies for Sharing: lessons from Quantified Self about the political economy of platforms*. Information, Communication & Society, 4462(March), 1–14.

Ballús-Armet, I., Shaheen, S., Clonts, K. and Weinzimmer, D. (2014) *Peer-to-Peer Carsharing*. Transportation Research Record: Journal of the Transportation Research Board, 2416, 27–36.

Bandyopadhyay, S., Bardhan, A., Dey, P., Das, S., Ghosh, S. and Biswas, P. (2016) *"Education for All" in a Connected World: A Social Technology-driven Framework for e-mobilizing Dormant Knowledge Capital through Sharism and Mass Collaboration*. Procedia Engineering, 159(June), 284–291.

Banning, M.E. (2015) *Shared entanglements - Web 2.0, info-liberalism & digital sharing*. Information, Communication & Society, 19(4), 489

Barnes, S.J. and Mattsson, J. (2016) *Understanding current and future issues in collaborative consumption: A four-stage Delphi study*. Technological Forecasting and Social Change, 104, 200–211.

Bauer, R.M. and Gegenhuber, T. (2015) *Crowdsourcing: Global search and the twisted roles of consumers and producers*. Organization, 22(5), 661–681.

Belk, R. (2014) *You are what you can access: Sharing and collaborative consumption online*. Journal of Business Research, 67(8), 1595–1600.

Bonciu, F. and Bâlgăr, A.C. (2016) *Sharing economy as a contributor to sustainable growth*. *An EU perspective*. Romanian Journal of European Affairs, 16(2), 36–45.

Boroń, M., Brzeziński, J. and Kobusińska, A. (2017) *SelfAid Network—a P2PMatchmaking Service*. In A. Zgrzywa, K. Choroś and A. Siemiński (eds) Multimedia and Network Information Systems (Vol. 506). Switzerland: Springer.

Bouncken, R.B. and Reuschl, A.J. (2016) *Coworking-spaces: how a phenomenon of the sharing economy builds a novel trend for the workplace and for entrepreneurship*. Review of Managerial Science, 12(1), 317–334.

Brugnoni, E., Polzonetti, A. and Sagratella, M. (2016) *ICT for Promoting Human Development and Protecting the Environment*. In F.J. Mata and A. Pont (eds), WITFOR 2016, IFIP AICT (Vol. 481). Switzerland: Springer.

Bucher, E., Fieseler, C. and Lutz, C. (2016) *What's mine is yours (for a nominal fee) - Exploring the spectrum of utilitarian to altruistic motives for Internet-mediated sharing*. Computers in Human Behavior, 62, 316–326.

Cheng, M. (2016). *Sharing economy: A review and agenda for future research*. International Journal of Hospitality Management, 57, 60–70.

Choi, H. R., Cho, M. J., Lee, K., Hong, S. G. and Woo, C. R. (2014) *The business model for the sharing economy between SMEs*. WSEAS Transactions on Business and Economics, 11(1), 625–634.

Coca-Stefaniak, A. and Carroll, S. (2015) *Traditional or experiential places? Exploring research needs and practitioner challenges in the management of town centres beyond the economic crisis*. Journal of Urban Regeneration and Renewal, 9(1), 35–42.

Cockayne, D.G. (2016) *Sharing and neoliberal discourse: The economic function of sharing in the digital on-demand economy*. Geoforum, 77, 73–82.

Cocola Gant, A. (2016). *Holiday Rentals: The New Gentrification Battlefront*. Sociological Research Online, 21(3), 10.

Cohen, B. and Kietzmann, J. (2014) *Ride On! Mobility Business Models for the Sharing Economy*. Organization & Environment, 27(3), 279– 296.

Cohen, B. and Munoz, P. (2016) *Sharing cities and sustainable consumption and production: towards an integrated framework*. Journal of Cleaner Production, 134, 87–97.

de Leeuw, T. and Gössling, T. (2016*) Theorizing change revisited: An amended process model of institutional innovations and changes in institutional fields*. Journal of Cleaner Production, 135, 435–448.

Elert, N. and Henrekson, M. (2016) *Evasive entrepreneurship*. Small Business Economics, 47(1), 95–113.

Ert, E., Fleischer, A. and Magen, N. (2016) *Trust and reputation in the sharing economy: The role of personal photos in Airbnb*. Tourism Management, 55, 62–73.

Forno, F. and Garibaldi, R. (2015) *Sharing Economy in Travel and Tourism: The Case of Home-Swapping in Italy*. Journal of Quality Assurance in Hospitality & Tourism, 16(2), 202–220.

Fremstad, A. (2016) *Sticky Norms, Endogenous Preferences, and Shareable Goods*. Review of Social Economy, 74(2), 194–214.

Fremstad, A. (2017) *Does Craigslist Reduce Waste? Evidence from California and Florida*. Ecological Economics, 132, 135–143.

Fuentes-Bracamontes, R. (2016) *Is unbundling electricity services the way forward for the power sector?* The Electricity Journal, 29(9), 16–20.

Germann Molz, J. (2013) *Social networking technologies and the moral economy of alternative tourism: The case of couchsurfing.org*. Annals of Tourism Research, 43, 210–230.

Hamari, J., Sjoklint, M. and Ukkonen, A. (2016) *The Sharing Economy: Why People Participate in Collaborative Consumption*. International Review of Research in Open and Distance Learning, 67(9), 2047–2059.

Hartl, B., Hofmann, E. and Kirchler, E. (2016) *Do we need rules for "what's mine is yours"? Governance in collaborative consumption communities*. Journal of Business Research, 69(8), 2756–2763.

Heinrichs, H. (2013) *Sharing Economy: A Potential New Pathway to Sustainability*. GAIA: Ecological Perspectives for Science & Society, 22(4), 228–231.

Henten, A.H. and Windekilde, I.M. (2016). *Transaction Costs and the Sharing Economy*. Info: Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media, 18(1), 1–15.

Heylighen, F. (2015) *Towards an intelligent network for matching offer and demand: From the sharing economy to the global brain*. Technological Forecasting and Social Change, 114, 74–85.

Hobson, K. and Lynch, N. (2016) *Diversifying and de-growing the circular economy: Radical social transformation in a resource-scarce world*. Futures, 82, 15–25.

Hong, S. and Vicdan, H. (2016). *Re-imagining the utopian: Transformation of a sustainable lifestyle in ecovillages*. Journal of Business Research, 69(1), 120–136.

Ince, A. (2015) *From Middle Ground to Common Ground: Self-Management and Spaces of Encounter in Organic Farming Networks*. Annals of the Association of American Geographers, 105(4), 824–840.

John, N.A. (2013). *The social logics of sharing*. The Communication Review, 16(3), 113–131.

Kathan, W., Matzler, K. and Veider, V. (2016) *The sharing economy: Your business model's friend or foe?* Business Horizons, 59(6), 663–672.

Kennedy, J. (2016) *Conceptual boundaries of sharing*. Information, Communication & Society, 19(4), 461–474.

Killeen, A. (2015) *The Confluence of Bitcoin and the Global Sharing Economy*. In D. Lee and K. Chuen (eds) Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data. Singapore: Elsevier Inc.

Kopnina, H. (2017) *Sustainability: new strategic thinking for business*. Environment, Development and Sustainability, 19(1), 27–43.

Lamberton, C. (2016) *Consumer Sharing: Collaborative Consumption, from Theoretical Roots to New Opportunities*. In M.I. Norton, D.D. Rucker, and C. Lamberton (eds) The Cambridge Handbook of Consumer Psychology. New York: Cambridge University Press.

Lampinen, A., Huotari, K. and Cheshire, C. (2015) *Challenges to participation in the sharing economy: The Case of Local Online Peer-to-Peer Exchange in a Single Parents' Network*. Interaction Design and Architecture(s), 24(1), 16–32.

Lebowitz, A. and Trudeau, D. (2016) *Digging in: lawn dissidents, performing sustainability, and landscapes of privilege*. Social & Cultural Geography, 9365(August), 1–26.

Lichtenthaler, U. (2016) *Six principles for shared management: a framework for the integrated economy*. Journal of Business Strategy, 37(4), 3–11.

Light, A. and Miskelly, C. (2015) *Sharing Economy vs Sharing Cultures? Designing for social, economic and environmental good*. Interaction Design and Architectures Journal, (24), 49–62.

Lobinger, K. (2015) *Photographs as things – photographs of things: A texto-material perspective on photo-sharing practices*. Information, Communication & Society, 19(4), 475–488.

Lougher, G. and Kalmanowicz, S. (2015) *EU Competition Law in the Sharing Economy*. Journal of European Competition Law & Practice, 1–16.

Luchs, M.G., Swan, K.S. and Creusen, M.E.H. (2016) *Perspective: A Review of Marketing Research on Product Design with Directions for Future Research*. Journal of Product Innovation Management, 33(3), 320–341.

Luckner, N., Fitzpatrick, G., Werner, K. and Subasi, Ö. (2015) *Setting up and running a sharing service: An organisational perspective*. Interaction Design and Architecture(s), 24(1), 63–80.

Malin, B.J. and Chandler, C. (2016) *Free to Work Anxiously Splintering Precarity Among Drivers for Uber and Lyft*. Communication, Culture and Critique, 1–19.

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

Martin, C.J., Upham, P. and Budd, L. (2015) *Commercial orientation in grassroots social innovation: Insights from the sharing economy*. Ecological Economics, 118, 240–251.

Matzler, K., Veider, V. and Kathan, W. (2015*) Adapting to the Sharing Economy*. MIT Sloan Management Review, 56(2), 71–77.

McIntyre, K. and Ortiz, J.A. (2015) *Multinational Corporations and the Circular Economy: How Hewlett Packard Scales Innovation and Technology in Its Global Supply Chain*. In R. Clift and A. Druckman (eds) Taking Stock of Industrial Ecology. Springer International Publishing.

McNeill, D. (2016) *Governing a city of unicorns: technology capital and the urban politics of San Francisco*. Urban Geography, 37(4), 1–20.

Mikhalkina, T. and Cabantous, L. (2015) *Business model innovation: How iconic business model emerges*. Academy of Management Proceedings, 2015(1), 12761.

Miller, S.R. (2016) *First principles for regulating the sharing economy*. Harvard Journal on Legislation, 53(1), 147–202.

Möhlmann, M. (2015) *Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again*. Journal of Consumer Behaviour, 14, 193–207.

Morandi, C., Rolando, A. and Di Vita, S. (2016) *From Smart City to Smart Region*. SpringerBriefs in Applied Sciences and Technology, 30, 93–103.

Morgan, B. and Kuch, D. (2015) *Radical Transactionalism: Legal Consciousness, Diverse Economies, and the Sharing Economy*. Journal of Law and Society, 42(4), 556–587.

Munger, M.C. (2016) *Tomorrow 3.0: The Sharing Economy*. The Independent Review, 20(3), 391–395.

Ndubisi, N.O., Ehret, M. and Wirtz, J. (2016) *Relational Governance Mechanisms and Uncertainties in Nonownership Services*. Psychology & Marketing, 33(4), 250–266.

Netter, S. (2016) *Availability Cascades and the Sharing Economy – A Critique of Sharing Economy Narratives*. In A. Genus (eds) Sustainable Consumption. London: Kingston University.

Oses Fernández, N., Gerrikagoitia, J.K. and Alzua-Sorzabal, A. (2016) *Sampling method for monitoring the alternative accommodation market*. Current Issues in Tourism, 1–14.

Ozansoy Çadırcı, T., and Sağkaya Güngör, A. (2016). *Love my selfie: selfies in managing impressions on social networks*. Journal of Marketing Communications, 7266(December), 1–20.

Pera, R., Viglia, G. and Furlan, R. (2016) *Who Am I? How Compelling Self-storytelling Builds Digital Personal Reputation*. Journal of Interactive Marketing, 35, 44–55.

Pisano, P., Pironti, M., and Rieple, A. (2015) *Identify innovative business models: Can innovative business models enable players to react to ongoing or unpredictable trends?* Entrepreneurship Research Journal, 5(3), 181–199.

Puschmann, T. and Alt, R. (2016) *Sharing Economy*. Business & Information Systems Engineering, 58(1), 93–99.

Richard, B. and Cleveland, S. (2016) *The future of hotel chains: Branded marketplaces driven by the sharing economy*. Journal of Vacation Marketing, 22(3), 1–10.

Richardson, L. (2015) *Performing the sharing economy*. Geoforum, 67, 121–129.

Rinaldi, A., Tosi, F. and Busciantella Ricci, D. (2016) *Advances in Design for Inclusion*. In G. Di Bucchianico and P. Kercher (eds) Advances in Design for Inclusion. Florida: Applied Human Factors and Ergonomics International.

Roh, T.H. (2016) *The Sharing Economy: Business Cases of Social Enterprises Using Collaborative Networks*. Procedia Computer Science, 91, 502–511.

Sahakian, M. (2015) *The Social and Solidarity Economy: Why Is It Relevant to Industrial Ecology?* In R. Clift and A. Druckman (eds) Taking Stock of Industrial Ecology. Springer International Publishing.

Santana, J. and Parigi, P. (2015) *Risk Aversion and Engagement in the Sharing Economy*. Games, 6(4), 560–573.

Schor, J.B. and Fitzmaurice, C. (2015) *Collaborating and connecting: the emergence of the sharing economy*. In L.A. Reisch and J. Thøgersen (eds) Handbook of Research on Sustainable Consumption. Cheltenham, UK: Edward Elgar.

Schor, J.B., Fitzmaurice, C., Carfagna, L.B. and Attwood-Charles, W. (2016) *Paradoxes of openness and distinction in the sharing economy*. Poetics, 54, 66–81.

Shaheen, S.A., Chan, N.D., and Gaynor, T. (2016) *Casual carpooling in the San Francisco Bay Area: Understanding user characteristics, behaviors, and motivations*. Transport Policy, 51, 1–9.

Söderberg, J. (2016) *The cloud factory: Making things and making a living with desktop 3D printing*. Culture and Organization, 0(0), 1–17.

Snow, S., Vyas, D. and Brereton, M. (2017) *Sharing, Saving, and Living Well on Less: Supporting Social Connectedness to Mitigate Financial Hardship*. International Journal of Human–Computer Interaction, 33(5), 345–356.

Sowerwine, J., Getz, C. and Peluso, N. (2015) *The myth of the protected worker: Southeast Asian micro-farmers in California agriculture*. Agriculture and Human Values, 32(4), 579–595.

Teubner, T. and Flath, C.M. (2015) *The Economics of Multi-Hop Ride Sharing: Creating New Mobility Networks Through IS.* Business and Information Systems Engineering, 57(5), 311–324.

Tussyadiah, I.P. (2016) *Factors of satisfaction and intention to use peer-to-peer accommodation*. International Journal of Hospitality Management, 55, 70–80.

Tussyadiah, I.P., and Pesonen, J. (2015) *Impacts of Peer-to-Peer Accommodation Use on Travel Patterns*. Journal of Travel Research, October, 1–19.

van Nuenen, T. (2016). *The production of locality on peer-to-peer platforms*. Cogent Social Sciences, 2(1), 1–16.

Weber, T.A. (2014) *Intermediation in a Sharing Economy: Insurance, Moral Hazard, and Rent Extraction*. Journal of Management Information Systems, 31(3), 35–71.

Weber, T.A. (2016) *Product Pricing in a Peer-to-Peer Economy*. Journal of Management Information Systems, 33(2), 573–596.

Wekerle, G.R. and Classens, M. (2015) *Food production in the city: (re)negotiating land, food and property*. Local Environment, 20(10), 1175–1193.

Whitham, M.M. and Clarke, H. (2016) *Getting is Giving: Time Banking as Formalized Generalized Exchange*. Sociology Compass, 10(1), 87–97.