

Community repair within a Circular Economy – an outdated practice or prefiguration for the future?

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Abstract

To repair electronic devices is largely perceived as an out-dated practice in a consumer-driven society where throwing them away is often an equally viable option. Overconsumption of electronic devices has large-scale negative environmental impacts. The following thesis examines the ways in which ‘Restart Parties’, or community repair of electronic devices, is becoming popular in the megalopolis London. These are three-hour pop-up events where participants arrive with broken electronics devices to get help repairing them together with skilled volunteers, called ‘Restarters’. The thesis illuminates how this form of community repair contributes to the transition to a circular economy within its ecological, social and economic dimensions.

The thesis is methodically and theoretically anchored in social anthropology, but is interdisciplinary in the sense that it draws from sociology, economics and innovation theory. While repair is a much neglected area of research in social sciences, this thesis uses social practice theory to examine the social practice of community repair; who repairs as well as why and how repairing in these communities occur, and what meanings participants attach to the practice. Through the lens of innovation theory it discusses to *what extent a largely restorative practice can be innovative?* The thesis argues that while we may not see innovation in the Schumpeterian term of ‘Creative destruction’ (1942), what we see is in fact innovation in restorative practices, and to a degree social innovation as the Restart parties establish a vision that people can be part of the solution creating a more sustainable future in sharing, caring and co-operative communities. To what extent the Restart Parties will contribute to the UK economy is more uncertain. The thesis hopes to contribute to the formation of a sustainable future by demonstrating how innovation in practices and cultural narratives can re-establish old, but more ecologically sound practices and principles.

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Abbreviations

ACM – Association for Computing Machinery

CSCW - Computer-Supported Cooperative Work

SC - Social Computing

Defra - Department for Environment, Food and Rural Affairs (UK)

DIY - Do-It-Yourself

EC – The European Commission

EU – European Union

HCI - Human Computer Interaction

ICT – Information and Communications Technology

Restart – The Restart Project

UK – United Kingdom

SPT – Social Practice Theory

TM – Transition Movement

WRAP – The Waste and Resource Action Programme (UK)

Preamble

When I first started telling people that I planned to do research on community repair of electronics, I was repeatedly met with disbelief and strange looks. Repair was seen as an out-dated practice, and many were sceptical that such a thing as Do-It-Yourself repair of electronics could really exist: ‘When it is broken, it is broken, no?’, or responding, ‘But isn’t that quite dangerous?’. At the best people around me considered it good for the environment, but a time-consuming practice no modern person would ever have the time or the effort to go through with. And in terms of commercial repair: the cost of buying a new device would surely, in most cases, out-weigh the option of repair by far.

So my interest in community repair started as a struggle, and as I entered my fieldwork I realised quickly that I was not the only one experiencing resistance. One of the volunteers told me during my first Restart Party: ‘We are fighting an uphill battle’. The concept of repairing electronics in communities, for free, is a challenging concept to people within the electronics industry, governments, and even to sceptical citizens.

‘So it is real then?’ This was the response of one of Janet’s friends the day she and her partner Ugo, both founders of The Restart Project, were first showcased by the BBC. Four years on and over 100 Restart Parties later, the concept is most certainly real. It has spread to over eight countries, from Italy to the US, and Restart has won prizes such as ‘Digital Heroes’ by TalkTalk and ‘London Leaders’ by London Sustainable Development Commission. When the Norwegian newspaper Dagens Næringsliv featured the movement over a six-page-long article, even I started to feel that the public opinion around me was changing. And suddenly and unexpectedly, the question went from, ‘How can there be potential in this?’ to ‘What about repair businesses? What if people lose their jobs because everyone just repairs for free?’ Having thought of Restart primarily as a practical starting point for questioning consumption of electronics, I had not anticipated this turn of events. Yet, as a fast growing initiative, similar to others within what Paul Mason has coined Postcapitalism (2015), I see their concern. It is a context where cooperation and sharing allows people to ‘trade’ with time, outside the classic economic market structures. Community repair offers a creative opportunity for change, but it also poses a threat to the old system. That Brexit

happened after the closure of this thesis, has further confirmed my belief that no-one knows the future of the EU, the United Kingdom, and in similar ways the future of community repair. By exploring the potential in community repair to make creative change, I hope however to shed some light on the matter.

1 Introduction

In today's consumer society it is more common to buy new commodities than to repair the old and broken. As we continue to postpone restoring the ecological equilibrium of our planet, to maintain and to care for is largely neglected – both as practices in our everyday lives and as principles for how we act in the larger scheme of things. The Restart Project (from here, Restart) is in a nutshell a comment on both issues. Restart couples the old mind-set of taking care with practical solutions for a more sustainable future. The initiative organises so called 'Restart Parties'. Here, Londoners can come and repair their broken electronic devices during three hour-long pop-up community events. Participants can learn and repair for free, together with skilled volunteers. Since its formal start in 2012 Restart has grown rapidly, and has held more than 100 Restart Parties. The concept has spread to eight countries, from Italy to the US, resulting in over 180 Restart Parties globally. Restart has won prizes such as Digital Heroes by TalkTalk, and London Leaders by the London Sustainability Commission.

The issue of electronic repair has not only been brought up at the grassroots level recently; but also a commercial repair industry is presented as one of key strategies for the European Union and the United Kingdom to transition to a circular economy (WRAP 2015, European Commission 2015b). A circular economy can be defined as 'an alternative to a traditional linear economy (based on making, using and, disposing) and refers to a practice that aspires to keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life' (WRAP 2016b). A larger commercial repair sector is seen as an opportunity to create jobs, boost a stagnating economy, and keep resources in the loop within Europe, reducing the environmental impact of electronics from production and consumption. While Restart is stirring up the local circle of a circular economy, the European Commission and the UK government is more focused on the outer circles (European Commission 2015b, WRAP 2016b). Seeing that micro levels are interwoven with the macro levels of society (Foros and Vetlesen 2012), this does not mean they do not affect each other.

The aim of this thesis is to understand in what way local community repair of electronic devices is relevant to the transition to a circular economy. The thesis will do

so by investigating the social practice of community repair and discuss how it contributes within the social, economic and ecologic realm of a circular economy, focusing especially on ecologic improvements, social innovation and economic growth. To give a brief introduction to the crux of the matter I will start by presenting a set of paradoxes that illuminate the discussions related to either of these dimensions. While it also would have been relevant to focus on the political dimensions of community repair, this has not been an emphasis due to the limitations of the thesis.

One of the objectives is thus to discuss how community repair contributes to ecologic improvements. Consumer society is fastening its grip around people and societies everywhere, consumption being the core principle that guides the life of individuals and society (Carrier and Miller 1999). A throwaway culture dominates, and repair is by many seen as a time consuming, mundane and old-fashioned practice. It seems paradoxical then that in London, one of the largest consumer centres in Europe, communities are instead gathering to repair their old, electronic devices. This is interesting from an environmental perspective. Electronics is the fastest growing waste source world wide (Lundgren 2012), and producing electronics leads to increase in CO₂ emissions, depletion of raw materials and environmental pollution at either end of products' 'cradle-to-grave' lifecycles (Braungart and McDonough 2009, Hansen and Wethal 2015, Lacy and Rutqvist 2015).

The thesis investigates how community repair by using the 'moment of failure' can give an opportunity for innovation in sustainable practices. Through the concept of 'broken world thinking' (Jackson, Pompe, and Krieshok 2012) it uses disruptions, failures and breakages as a point of departure, instead of the more common focus on creation, on-flow and development. It investigates how competences, materiality and cognitive processes shape the social practice of community repair. Participants may not be alien to the concept of repair, but it became clear throughout my fieldwork that most did not want to repair electronics on their own. I examine the power of social situated learning as cooperation and sharing of skills establish electronic repair as a viable practice; enabling people to stay confident and endure the sometimes intimidating experience of repairing 'black boxes'. Restart may in this sense be viewed as innovative as they introduce sustainable practices that lead to greater ecological sustainability. Through this discussion the thesis sheds light on how more sustainable

practices can be taken up anew. It draws attention to electronics especially, as environmental challenges related to consumption and disposal of electronics are a neglected, but critical area in need of change.

The second objective is to illuminate the social function of community repair. To share, cooperate and care for the other, nature included, are not dominant principles in a modern consumer society. In contrast, these are the founding principles of community repair. Naomi Klein argues we are locked into climate change, physically, politically and *culturally* (2014). Shared prosperity, cooperation in communities, and a new conception of humans as ‘caring creatives’ should be the goal of a cultural and social transformation, that will lead to greater social and environmental sustainability (Jackson 2009, Witoszek 2016). It is valuable to investigate whether community repair in a sense can be considered social innovation, a strategy to break free from the cultural grip. To shed light on these issues I examine how community repair establishes an alternative narrative for how we can create a society not dominated by wasteful consumerism, inequality and competition - by demonstrating that seemingly closed, irreparable electronic devices, or ‘black boxes’ can be repaired if people cooperate, share skills, and come together in order to not be wasteful. Moreover, by letting people experience that they *can* do something, and be part of the solution as they build stronger communities that subsequently reduce negative ecological impacts. I discuss participants’ scepticism to the potential of community repair despite their appreciation for this narrative, and how it re-classifies repair as a renewed practice and principle. At the Restart Parties, the principle of repair shrugs off old connotations and becomes connected to new and more positive connotations such as ‘learning’, ‘experiencing’, ‘being social’ and ‘a sustainable environment’. In this way, to repair in communities repair is in a sense a symbol for a more encompassing concept of being a caring creative, a term coined to describe a more sustainable way of functioning on the planet (Witoszek 2016). The thesis illuminates the social role of community repair, as it breaks free from dominant cultural values and norms. By discussing the role of social innovation in a transition to a circular economy, the thesis hopes to emphasise how and why the UK should also focus on supporting a transition to a circular economy within the inner circle – the one between people and communities - not

solely in the outer ones where the market reigns. These circles are arguably interconnected and affect each other.

There are many obvious advantages attached to how community repair contributes to greater sustainability and local communities: it reintroduces principles and practices that do not deplete the planet of resources, enhances cooperation and reduces social distance by building communities. While we may not necessarily call this innovation in the Schumpeterian sense of ‘a gale of creative destruction’ (1942), it may be seen as innovation in environmental practices, by managing to re-introduce the old principle of repair as something new.

The last objective is to discuss and problematise how the economic dimension’s of community repair contributes to the transition to the circular economy of the UK. To what extent does the repair project support – or challenge – a circular economy and its economic dimensions, which rests on limitless profit hunting and economic growth? While I am no economist or statistician, I believe it is worth asking what a society would look like if free, community repair events were the norm; building on free repair manuals abundant on open source¹ internet platforms. My fieldwork has shown that both participants and the founders of Restart did not see community repair as a challenge to the repair industry. The founders argued the two practices were rather complimentary. They hoped community repair would contribute to commercial repair by making repair more transparent, heightening awareness of why it is important, and educating people to make better consumer choices by buying more repairable products. They felt that greater transparency and knowledge sharing would lead to a bigger and better repair industry overall. Nevertheless, several scholars have argued we need a shift in the economic climate to adapt to a more sustainable future. A circular economy is driven by profit and economic growth. While some of the visions of sustainability-orientated scholars are controversial, they predict and argue for a shift towards a different economic system that will not challenge environmental capacity (Jackson 2009, Mason 2015b, Klein 2014). As Klein put it in her book, the problem lies in juxtaposition between ‘Capitalism vs. Climate’. ‘We are left with a stark choice’, Klein argues; ‘allow climate disruption to change everything about our world, or

¹ ‘The term "open source" refers to something that can be modified and shared because its design is publicly accessible’ (Opensource.com 2015).

change pretty much everything about our economy to avoid that fate' (2014, 22). In a different social, economic and ecologic climate, initiatives like Restart could play a larger role. Jackson argues that prosperity can be reached without economic growth if governments take charge (2009). Mason argues such a shift *will* happen, as knowledge becomes abundant via the information society, automation takes over and competitive marked structures deteriorate as people 'pay' in non-marked spheres with, for example, their time (2015b). Without going into a discussion about the likelihood of such a project, these are nonetheless interesting perspectives that illuminate the complexity of the matter. Commercial repair builds on traditional monetary exchange, but what if people get less money and more time and prefer paying with time? Restart has the potential to spread wide as it enables novices to take up practices that are shared globally, through online repair knowledge. Organised via online communication tools the concept could potentially be exported across the globe and into local communities as a new practice. Without implying that this alternative repair-oriented future is necessarily the best scenario, these still are questions worth asking.

1.1 Research questions

To investigate the social practice of community repair and its relevance to a circular economy, the thesis has been guided by the following research questions:

- *What actors repair electronics, and why do they engage in this practice?*
- *What elements shape the social practice of community repair?*
- *How is meaning attached to the practice and what meaning is invoked?*
- *To what extent can a largely restorative practice be innovative?*

1.2 State of the art

Repair is a largely neglected field of research within social sciences, and has only been taken up by a few scholars (e.g. Graham and Thrift 2007, Sennett 2008, Rosner and Turner 2014, Jackson, Pompe, and Krieshok 2012). Existing research is more preoccupied with growth, development and the next new thing, than with erosion,

breakdown and decay (Jackson, Pompe, and Krieshok 2012). And yet we should attempt to 'surface the invisible work' (Leigh Star 1999, 385) of maintenance and repair as it is crucial to all infrastructural connections, to movement and flow (Graham and Thrift 2007). It is not the 'practical on-flow of everyday life', but rather maintenance and repair that holds up society, targeting its constant decay (Graham and Thrift 2007, 17). Furthermore, it is when something breaks down that its physical and metaphorical infrastructure become visible, and we see society for what it is.

A small, but growing literature on repair has surfaced the last few years. It is primarily found within the tradition of Human Computer Interaction literature or in relation to waste minimisation studies aiming to identify how countries like the UK can improve their recycling and waste minimisation targets. There are several facets of the first tradition spinning around the moment of disruption and decay, a recurring theme being repair as an overlooked site of innovation, improvisation and creative thinking (Jackson, Pompe, and Krieshok 2012). This literature builds in large on the heritage from Orr (1996), Downey (1998) and Henke (2000), who have focused on the verbal language connected to repair, all building on Garfinkel (1967) who focused on the language of repair. Garfinkel demonstrated that written instructions are not sufficient to describe actions, as there is always an undefined space. Since circumstances change, every repair process is another 'first time', leaving instructions inadequate. Attention has thus been drawn to the learning opportunity inherent in the practice of repair. Orr in particular demonstrated in his account on repair workers how the 'war stories', or personal accounts, that were told in breaks and lunch hours were more important than manuals and organisational instructions to guide repairers to recognise and solve faults. Always leading to further learning, the moment of failure has as such been linked to creative improvisation, solution making and a moment of reflection (Dewey 1933, Graham and Thrift 2007, Rosner and Turner 2014). Through new interactions, the depth and dimensionality of objects can emerge (Jackson and Kang 2014). In this way, repair has been singled out as an opportunity and a moment to think differently about responsibility and sustainability (Jackson and Kang 2014). It can be used as a moment to take on a 'new materialism', Brook argues. We can re-engage with matter through smaller practices such as mending, both on a micro scale, and on a macro level, reconnecting with a world with its limits and balances (2012).

This tradition of repair literature can moreover be divided into two strands focusing on repair practices and traditions in the South and in the North. Jackson et al. has through the metaphorical lens of ‘broken world thinking’ looked into repair worlds in the Global South, primarily Namibia and Bangladesh (Jackson, Ahmed, and Mim 2015, Jackson, Ahmed, and Rifat 2014, Jackson and Kang 2014, Jackson, Pompe, and Krieshok 2012). As Northern innovations in mobile computing ‘may be focused around novel developments in hardware, software, and user interfaces, more significant and original innovations in post-colonial computing environments may be found around practices of hacking, repurposing and repair’ (Jackson, Ahmed, and Mim 2015, 2). This research has also exemplified how repair to a greater extent has become part of an everyday practice in these areas, and contributes to shaping a mind-set where repair is more natural than throwing away, as part of a stronger tradition of community collaboration and sharing. The quote of one of their informants stresses this point: ‘I sell fish in Karwan Bazar market. Often my mobile phone falls off my pocket into the basket of fish or into the bucket of water. Then it stops working. Then I put it in the container of rice for at least one day, and my phone starts working again. I learnt this from a friend of mine’ (Jackson, Ahmed, and Mim 2015, 8).

The term ‘broken world thinking’ was coined to describe a ‘gestalt shift in our ways of thinking about sociotechnical system development that moves moments of maintenance and repair, rather than just moments of design and adoption, to the heart of CSCW (Computer-Supported Cooperative Work) thinking practice’ (Jackson, Pompe, and Krieshok 2012, 115). This shift is also relevant to the second strand of literature occupied with practices and sites of repair in the Global North, and its connection to creativity, innovation and design there. Here, repair communities with a Do-It-Yourself ethos can in many ways be seen as an extension of the maker and hacker movement that has bloomed in the last decade. While the maker movement has been used to describe a movement of tech-DIY (Maker Faire 2015), the hacker culture describes a subculture of individuals who enjoy overcoming limitations in (usually) software in a playful, intellectual and creative manner, achieving novel and clever outcomes (Gehring 2004). They both put strong emphasize on the importance of shared and open knowledge and technology (Rosner et al. 2014, Fonseca 2015); technology should be designed to be open and creative - tinkering with hardware and

electronics is seen to create better design and technical solutions for the world. Rosner and Turner were surprised to find that the Do-It-Yourself movement attached to the iFixit clinics in the San Francisco Bay area was also infused with political and environmental activism, similar to that of the 1960's countermovement where counter-culturalists transformed products of industry to their own needs as practical yet symbolic actions (Rosner, 2014). Although I would argue Restart does not stem from the same roots (a discussion that goes beyond the limitations of this thesis), Rosner and Turner's view on craft and repair as a 'philosophy of activism' is interesting (2014, 5). Their findings that 'it is in this semiotic display of ritual that practitioners orient repair efforts toward a countercultural conceptual framework for social change' might well be relevant to the practices of community repair at the Restart Parties (Rosner and Turner 2014, 5).

The second tradition of literature on repair is placed within the field of waste minimisation. Funded largely by The Department for Environment, Food and Rural Affairs in the UK (Defra) it draws attention to attitudes and behaviour related to minimising waste. Research on repair, as a relevant strategy, is nevertheless lacking (Tonglet, Phillips, and Bates 2004, Wattson 2008, Lee-Woolf et al. 2012, Brook Lyndhurst 2011). People who are eager recyclers are not necessarily concerned about minimising waste through other practices like repair and re-use, as these in many cases are seen as separate issues (Tonglet, Phillips, and Bates 2004, Cox et al. 2010). This makes the research on recycling less transferable to the issue of repairing electronics. Most of the existing studies have a more general outlook, not focusing specifically on electronics. Two key findings within this literature are still relevant to draw attention to. Firstly that few people consider repair as a practice as they don't see the cost-benefit of when having it done professionally (King et al. 2006, Lee-Woolf et al. 2012). Secondly, that few people repair themselves as they claim to not have the skills. Zero Waste Scotland's report on 'Engagement with re-use and repair services in the context of local provision' (Lee-Woolf et al. 2012) commented:

In-home repairs make up the majority of repair behaviours for items, except shoes. There is a need to consider the role of self-skilling and in-home repair to prolong the lifetime of items and any basic information or advice required to facilitate this, such as diagnostic tools, 'how to fix'-

guides or signposting to spare parts services. For example, an online video about how to replace a filter on a dishwasher or sew a button onto a shirt would facilitate basic repairs in the home for those who lack the knowledge necessary to do so.

This highlights an important issue: Pushing repair of electronics, commercially or at home might prove difficult as long as the cost of repair remains high, especially in comparison to buying new. If there is a lack of practical skills enabling people to repair themselves, many people, even if they had wanted to repair their things, are without the means to do so.

The following thesis hopes to contribute to former research in three ways. Firstly, by drawing on both traditions of literature to create a richer understanding of the different dimensions of the practice of repair; Secondly, by demonstrating that seemingly separate waste minimisation efforts can be merged together through new principles, such as being a ‘caring creative’; Thirdly, by bringing attention to the much neglected research field of electronic repair, and the ways it forces us to rethink the mechanisms of the electronic industry and its relation to sustainable development.

1.3 Theoretical framework

Theoretically and methodologically, the thesis is a case study grounded in social anthropology and ethnography. I use a syncretic, interdisciplinary approach, inspired by insights from sociology, economy and innovation theory. Social practice theory (SPT) is the main theoretical framework, applied to analyse and understand what shape and thus characterises the practice of community repair. In this process I draw on Sennett’s (2008, 2012) theoretical understanding of repair, and my own observations gathered through sensory ethnography (Pink 2015). To analyse the meaning of community repair I draw on Fludernik’s concept of narratives, and Ortner’s definitions of symbols as elaborative metaphors. I draw on the concept of social situated learning from Lave and Wenger (1991) to establish what characterises the social practice. Schumpeter’s’ concept of *creative destruction* (1942) and Young Foundations’ definition of ‘social innovation’ will be used as a lens to discuss how community repair contributes to circular economy within a social, ecologic and economic

dimension². In this discussion I draw on Klein (2014), Jackson (2009) and Mason's critiques and evaluations of capitalism as well as their discussions of new pathways to a more sustainable future (2015b).

The theoretical framework is complex, but it has been chosen to combine and bridge a micro and macro perspective. A close up investigation of the social practice of community repair has been enabled by social practice theory and a sensory experience of repair. The more zoomed out lens to understand how this practice contributes to a circular economy has been offered by innovation literature and economic theory. In the next section I will give a more elaborate introduction to the key concepts that have been used to analyse the social practice, as well as a short introduction to Schumpeter's perspective on innovation. The other concepts and perspectives will be introduced throughout the thesis as relevant.

1.3.1 Social practice theory

This thesis has been inspired by social practice theory (SPT). Rooted in the mid-20th century, social practice theory has had a relatively recent revival embracing a holistic practice-oriented approach to understanding behaviour, and how practices emerge and diffuse (Shove, Pantzar, and Watson 2012). It has been influenced and developed by several scholars, including Bourdieu (1977), Giddens (1985, 1986), Reckwitz (2002) and Shove et al (2012). SPT goes beyond more classic approaches to understanding people's behaviour, seeing people neither as rational-oriented 'homo-economicus' nor as norm-oriented 'socio-economicus', where attitudes and values are seen as main predictors for people's behaviour (Hargreaves 2011). The latter approach has to a great extent influenced traditional policy making, targeting sustainable consumption as an individual decision making process (Shove 2010). SPT sees people as socially sensible beings who do not act in a social vacuum, but who take into account their cultural and historical context when making decisions (Shove et al. 1998). Wilhite, drawing on these scholars, have proposed that practices are shaped by three pillars: 'the body –

² This could have been explored by a number of other approaches or theoretical perspectives. An extended economic analysis, using Edward Freeman's stakeholder theory, could well have been used, aiming to shed light on the perspectives and interests of different stakeholders within different circles, analysing community repair from both a business and ethics perspective.

including cognitive processes and physical dispositions; the material world – including technology and infrastructure; and the social world – including settings, norms, values and institutions’ (Sahakian and Wilhite 2014, 28). This brings the focus to either the people or the products, instead of solely the practices themselves, but recognises that surrounding contexts, materiality and power that rests in discursive fields can in some cases override all cognitive factors (Stern 2000). To analyse how the different pillars shape the practice of community repair, Wilhite’s concept of *distributed agency* is useful (2014). Ortner defines agency as ‘the capability or power to be the source and originator of acts’ (Ortner 1989). It is a complex and therefore challenging concept to use, but by understanding how agency is distributed we can understand what characterises the practice of community repair.

Habitus is a central concept to my analysis to understand why people repair: their motivations and starting point for entering the practice. Combined with Giddens concept of distributed agency it is part of what shapes practices. *Habitus* was introduced by Bourdieu (1977) to describe how our embodied knowledge is a system of physical and cognitive dispositions that structures the way we act and think. Competences, techniques and knowledge as well as our beliefs and ideology are as such part of our bodily and cognitive dispositions. The concept draws attention to biographical and historical experiences that have inscribed dispositions in us in space, over time (Sahakian and Wilhite 2014). Our *habitus* organises practices and representations of practices and is at the same time formed by those very practices in a dynamic relationship. Though it employs the ‘presence of the past’ (Bourdieu 1997, 304) it constantly changes as it confronts and mediates these new experiences (Sahakian and Wilhite 2014). *Habitus* is relevant to my analysis in order to understand to what extent community repair can be seen as a new or old practice, because this will depend partly on the participants’ physical and cognitive dispositions.

Habitus must not be confused with *habits*. Everyday practices are also structured by routinised behaviour, often summed up as habits (Shove et al. 2012). Shove define these as ‘recurrently and consistently reproduced by suitable committed practitioners’ (Shove 2012). While all habits are practices, not all practices are rooted in routinised behaviour (Sahakian and Wilhite 2014). I mention habits as they are usually very central to an analysis of social practices, but as community repair hardly can be

defined as an everyday, routinised practice, this concept has not be central to my analysis.

There is agency in things, material knowledge and scripts that shapes the way we use them and practices related to them (Sahakian and Wilhite 2014). Devices can be scripted so they are used in certain ways. Designers can hence prescribe actions and direct how we use technology and things, subsequently forming people's practices (Latour 1992, Akrich 1992). Scripts can, however, transcend functionality (Verbeek 2006, 362). To what extent a smartphone is designed to be opened and repaired by the owner, is consequently part of the phone's script. Material knowledge can also be embedded in things and structures, forming practices intentionally and unintentionally. Things and technology have agency that goes beyond the script. Wilhite emphasises that there is an important distinction between material agency and technological determinism (2013a). People also take things and technologies into their own hands. They make them useful and fit for their own purpose; people may open up and fix their iPhone although it is not designed for this. Scripts and material knowledge give things agency, shaping the way we use them. As such they have the power to shape practices.

1.3.2 Perspectives from Innovation literature

When it comes to theories on innovation I have mainly been concerned with two concepts: Firstly, one of Schumpeter's influential ideas of innovation as expressions of 'creative destruction'. I will use his understanding of innovation as a lens to discuss the nature of the social practice of community repair³. Schumpeter understood innovation as a 'process of industrial mutation, that incessantly revolutionises the economic structure from within, incessantly destroying the old one, incessantly creating a new one' (Schumpeter 1942, 83). He coined this definition as the process of creative destruction, describing it as an essential feature of capitalism that allows it to continuously develop. Within this process he noted that commodities, technology, new sources of supply and organisations do not compete on the basis of price and profit margins, but rather on their foundations: 'their very lives' (Schumpeter 1942, 84). Levels of innovation are therefore not always quantifiable.

³ I have not been concerned with other innovation literature as my motivation is primarily to use this lens to draw attention to the larger picture.

Innovation literature has mostly been applied to economic and technological innovation. It is nevertheless relevant also for understanding creation of new practices related to social and ecological dimensions. Social innovation as an alternative concept is understood here as innovation that is social in both its ends and its means (Young Foundation 2012). It leaves the definition not entirely defined, but captures the dual interest where the innovation is concerned with finding both better ways to meet human needs and at the other end striving to strengthen bonds of commitment and solidarity (Nicholls, Simon, and Gabriel 2015). Shove, Pantzar and Watson consequently argue that social practice theory is very compatible with innovations studies (2012). While social practice theory offers the close up perspective of what shape practices, innovation literature offers a lens for discussing the nature of the practice.

1.4 Methodological framework

The thesis is built on a qualitative case study of the Restart Project in London, United Kingdom and uses a combination of ethnographic methods. Ethnography is a powerful method of getting an in-depth understanding of complex realities and processes (Brockington and Sullivan 2003). Data was gathered over the course of a three-month fieldwork (July – October 2015) through participant observation, qualitative interviews, and informal conversations as well as a study of institutional documents. The application of several methods is beneficial as it allows for a stronger array of evidence than if only one method was used (Yin 2009). In the following section I will provide an overview of the data collected, arguing why this has been a fruitful approach. I will go on to describe the different methods used for gathering data, how the data was analysed as well as methodological challenges and ethical considerations.

1.4.1 Ethnographic fieldwork

Ethnographic fieldwork was used to get an in-depth understanding of the case study as well as the larger discourse and context of the movement. Semi long-term fieldwork (after an anthropological standard) was used to encourage insights into meanings otherwise hidden during a shorter timespan (Pink 2015). Though I did not live with my informants as in classic anthropological fieldwork, the experience of being in London

and following Restart over a longer period of time gave a deep embodied understanding of the movement.

To investigate the case study of Restart I followed the initiative as closely as possible during these months. I volunteered with Restart two days a week in August and September 2015, at their office at the Makerversity, in Somerset house. Being part of the Restart environment, co-organising Restart Parties and following repair processes on-site from start to end enabled me to be a type of apprentice at several levels. I learned first hand about the practices and routines for building Restart as a movement, the Restart Parties themselves, and to undertake repair of electronics. If we desire to learn about activities and environments it is by actually engaging with them that we come to know them (Ingold 2000). Furthermore I attended ten Restart Parties - in central, southern, western, eastern and northern suburbs of London - as well as one Party hosted by Restart at the Festival of Code in Birmingham, organised by Young Rewired State⁴. I engaged in informal conversations with approximately 50 participants altogether at these events, and followed up 11 of these conversations with more in-depth, open-ended interviews.

The fieldwork was used to immerse myself in the topic, to inform my understanding of the full lifecycle of electronics in the UK and the context that Restart operates in. In the absence of previous research on the topic, this became my main source of information for the backdrop. To probe into the question of design, production and bordering practices of tinkering, hacking and making I investigated the maker movement: I visited and talked to participants and founders of five different maker- and hackspaces all over London⁵. Many Restarters were also eager makers. I also went to a design talk hosted by Restart, Fairphone and Lovephone (an independent repair shop) and attended the launch of Fairphone 0.2 – the first DIY repairable phone on the market that also is produced after high ethical and environmental standards. To inform my understanding of systems for recycling electronics I went to the Hackney Council's recycle event and interviewed a waste officer at Hackney Council. To understand the opportunities for commercial repair services I visited both large, certified repair services such as the Apple Store, iStore, GeekSquad and KnowHow at Dixons and

⁴ For list of Restart Parties, see 'Appendix 4'

⁵ For list of places visited, see 'Appendix 5'

Curry PC World, and small independent repair shops all over London, in addition to Bright Sparks – a council-driven charity shop that for a while attempted to offer low cost electronic repair services (this had been ended upon my visit). I also conducted two interviews with representatives for WRAP, UK's primary non-profit recycling advocate. This I will return to.

During my fieldwork I used a personal 'field book' where I would write down goals, leads to investigate as well as different thoughts, quotes and ideas that came to me during the process. A field journal was also written on the computer about day-to-day events, observations and to record informal conversations. A journal can be a major source of data (Janesick 1999). I would write more extensive observational notes after each Restart Party recording the full sensory experience, attempting to write without censoring my observations, being aware that observations seemingly irrelevant at the time could become valuable later.

In my study I have distinguished between 'participants' and 'informants'. 'Participants' refer to all the people I have spoken to at Restart Parties as well as in interviews. 'Informants' refer to the people I have conducted long, open-ended interviews with.

1.4.2 Participant Observation

Participant observation through sensory ethnography was central to the fieldwork in order to uncover the social practice of repair and the meanings participants attached to the practice. Sensory ethnography recognises the emplaced ethnographer as part of a social, sensory and material environment, and within political and ideological agendas and power relations (Pink 2015). For this reason, it is particularly useful for bridging applied and academic work. The method has been key to building a rich ethnography that grasped the experience of repairing in full depth and the meaning making that took place during the repair process and in interrelated discussions at Restart Parties. The method does not diverge from classic ethnography where participation, observation, asking questions and interviewing is central, but it challenges this paradigm by questioning whether the visual should be regarded as the most important sense in our research (Pink 2015). Following Okely this means 'drawing "on knowledge beyond

language”, where knowledge is “embodied through sight, taste, sound, touch and smell” and “bodily movement, its vigour, stillness and unsteadiness ... (is) ... absorbed” (Okely 1994, 45 in Pink 2015, 97). This method makes a lot of sense in a highly practical environment like community repair where communication and interaction often is non-verbal as sensing through touch, listening, watching in silence and sometimes smelling were important motions to navigate the process of repair. To quote Regina Bendix, it enabled me to grasp ‘the most profound type of knowledge (which) is not spoken of at all, and thus inaccessible to ethnographic observation or interview’ (2000, 41). To learn how people experience and make meaning of repair has as such not only involved me observing what they do, but also encouraged me to use all my senses in order to participate in their world, conditioned by their embodied understanding (Pink 2015).

Participating at Restart Parties was also a key opportunity to engage in informal conversations with participants. Conversations could last from 5 minutes to an hour depending on whether I talked to participants in a passing, visited their table or followed their repair process from A to Z. Participants’ own interests or stories relating to the repair process often guided these conversations. Otherwise I might ask questions about their interest in repair and Restart, the story of their device, how it broke down, if they had considered commercial repair or whether they saw repair as important.

1.4.3 Qualitative interviews

I conducted ten qualitative interviews⁶ with informants whom I had met at Restart Parties. The interviews were used to get a more in-depth understanding of participants’ backgrounds, their motivations for participating in community repair, how they had experienced repairing at the Restart Party and how they made meaning of the practice. Bourdieu (1977) argued that if we want to understand action, we must take people’s socio-material history into account. People continue to be formed by previous actions, as patterns of actions become embedded in bodies, practices, and material settings (Wilhite 2013, 62). Understanding the informant’s background and experiences related to repair was therefore important to get an understanding of the cognitive and physical

⁶ For list of interviews, see ‘Appendix 1’

dispositions shaping the social practice. The interviews lasted between 50 minutes and 1 and ½ hour and were conducted as semi-structured conversations. I followed an interview guide⁷ that I had memorised beforehand to create a more informal setting. I would send the informant a Letter of Consent⁸ on beforehand and ask for permission to use a tape recorder. I let the informant choose the setting, which in most cases was a café in central London or in the neighbourhood of the informant. On one occasion the interview was conducted in the informant's home. I would let the informant talk freely after my guiding questions, now and then redirecting them onto new topics as I internally kept track of whether my main themes of interest had been covered. If the informants brought up interesting or relevant themes, I would probe into these matters asking follow up questions.

My four interviews⁹ with WRAP (two interviews with separate representatives), as well as the interviews with Hackney Council and Restart, were conducted in their respective offices, and followed the same formal procedure as above. I never intended to base large parts of my analysis on these interviews. However, as information on the current discourse on sustainable electronics and repair is so absent, 'upward interviewing' (Aberbach and Rockman 2002) of especially WRAP and Hackney Council provided a valuable insight into the attitudes, beliefs and values of these institutions and the larger discourse within the UK government on repair and a circular economy. WRAP was in particular chosen, as they are the UK's primary non-profit recycling advocate. They have been fundamental in developing the country's systems related to waste management and a circular economy. They work with businesses and individuals 'to help them reap the benefits of reducing waste, develop sustainable products and use resources in an efficient way' (WRAP 2015). As such they provided me with valuable data on the contextual discourse on repair.

1.4.4 Selection of informants

My combination of interviews, participant observation at Restart Parties and working in the Restart office provided me with a rich understanding of who the participants at

⁷ For interview guide, see 'Appendix 2'

⁸ For overview of Letter of Consent, see 'Appendix 3'

⁹ For list of interviews, see 'Appendix 1'

Restart were. As an initiative aiming to move around to different suburbs in London, Restart has no main target group. Their aim is rather to provide a social space where people from different backgrounds can meet on neutral ground. As a result, the participants also reflected much of the diversity of London. At the Restart Parties one would in general find people with different socio-economic backgrounds, lifestyles and ethnic origin. Present were people going to high school and university, working professionals and people who had retired. The majority were nevertheless working, and in between the age of 30-50. Although a great majority of Restarters (the volunteer repairers) are men, the participants represent a fairly equal mix between both sexes. My selection of informants for the interviews aimed to cover this diversity as far as possible. I had an equal representation of five men and six women, ranging between the ages of early 30s to mid 60s. Most were single, or in a couple relationship without children. My informants had a range of professional backgrounds: artists, engineers, media creatives, medics, and teachers. With regards to ethnic diversity, eight of the informants had grown up in England or London, but were first generation immigrants from Iran, China or India. Three of these had also lived parts of their childhood in other countries. Three of the informants had moved to London as adults, two from Germany and one from Malaysia. Altogether, they cover some of the diversity present at Restart Parties, where the range of people with different backgrounds is great.

1.4.5 Document collection

Written sources – such as statistical documents, governmental papers and reports as well as newspaper articles - have contributed to my understanding of a circular economy and the interlinked discourse on repair in the UK and the EU. This way of working, with a variety of methods and sources, has enhanced the validity and rigor of my research, helping to identify the nature of the contextual backdrop.

1.4.6 Analysing data

The process of analysing data starts at the first moment of entering the field, and includes all levels of interpretation and processing of the material (Pink 2015). Holding a field book and writing in a field diary was helpful to record the process, as well as to reflect on themes and categories that I became exposed to while in London.

Upon returning to Oslo I completed transcription of all my interviews. I analysed the data by reading through the interviews several times, and identify themes and categories inductively. I did not use a computer programme to do this, but structured the information in an excel grid where I identified the people along the x-axis, and categories such as background, perceptions of electronic waste, experience with repair and informants' reflections on materiality, competences and social situated learning and motivations along the y-axis. This enabled me to sort, separate and compare the themes and what different informants had said. I would read through my field notes multiple times to bring back the sensory experience of repairing, and add my own observations to the categories. Having said this, though part of my analysis attempts to be very structured and ordered, the thesis also rest on more intuitive forms of thinking about the meanings and experiences I was exposed to in the field (Pink 2015). Especially when it comes to sensory ethnography, the analysis is not an activity isolated from 'experience' and embodied knowledge (2015, 142). The experience of being in the field, embodying the practice of repair through sensory ethnography, reading theory and relevant documents as well as coming back to my excel sheet, notes and field diary, has altogether helped me in my analysis and interpretations.

1.4.7 Methodological challenges

Concepts of objectivity, bias and specification, enabling research to be replicated, are challenging concepts within ethnography (Stewart 1998). Ethnography is always deeply situated. With my strong concern and passion for environmental issues, I was concerned about not becoming biased and losing my objectivity as a result of my personal engagement with the issues I researched. I aimed to remain objective through alertness, receptivity to the views of others, and through empathy and open-mindedness (Stewart 1998, 16). Through a combination of methods, I sought to gain a rich ethnography that through critical examination would point my interpretation beyond that of my own biases and preconceptions on the subject.

The lack of research on repair and discourse on sustainable electronics meant that I became increasingly aware of many of the discourses connected to repair upon first entering the field. Uncovering these seemingly hidden clusters of problems and issues made the fieldwork highly intriguing, but also challenging. While the fieldwork was

structured and ordered around certain defined activities, there was also a great deal of freedom to follow leads I encountered along the way that might enrich my overall understanding. This approach was very fruitful, but also challenging. It forced me to return and reiterate my scope of study on a daily basis, reflecting over the data I had gathered, and whether it was inside or outside the limitations of my thesis. Being curious and an eager learner has been an advantage, but also tested my ability to set limits to my thesis.

Having lived and worked in London for two years previously helped me greatly in the process. London is a fast paced city where the density of people, distances in travel and high costs of living can challenge the stamina of any person new to the place. Having gone through this ‘culture shock’ earlier on and having established an intimate relationship with the city was thus a good vantage point (Eriksen 1998). It meant that I was able to focus on my research rather than having to use extensive time and energy to navigate and grasp the practicalities and inner-workings of the city.

Prior to my fieldwork I had reflected and thought that as a young female student without any extensive knowledge or experience with repairing electronics, my relation to and role within the Restart environment, might be affected by factors such of gender, status and competences. This was something I especially prepared myself for as I assumed the community would be fairly dominated by men. During the fieldwork I found nonetheless that being an ‘apprentice’ or ‘novice’ on the subject was mostly to my advantage. I was very open about who I was and my level of knowledge, and as such it allowed me to ask more naive questions, gaining the confidence of Restarters, participants and informants because I was perceived as little threat. I was pleased to experience the opposite effect in that the Restarters were very happy to teach, share knowledge and contribute to my research.

1.4.8 Ethical considerations

The project was approved by the Centre for Development and the Environment (SUM), in addition to the Norwegian Social Science Data Services, after reporting on how I would collect and store data about my informants. Repair of electronics is not necessarily a sensitive matter, and none of my informants were hesitant about

revealing their thoughts on the matter. Even so, seeing I have been given access to sensitive information about my informants and their personal sphere, I have treated the information with caution accordingly. To protect their confidentiality, I have made the informants anonymous by changing their names and other information that can reveal their identity. I asked the informants to read and sign a Letter of consent¹⁰ before the interviews, or approve it orally to the recorder if this was more feasible.

Consumption is not necessarily a neutral topic, as it is linked to environmental degradation and climate change, and can be experienced as a guilt ridden and problematic topic. It can be a challenge to align thought and action in a modern society. Knowing what is the right thing to do, but not managing to act accordingly, can cause tension within individuals. I was aware that topics concerning consumption in this respect could be of sensitive matter. Similarly, questions regarding economic situations occasionally caused uneasiness among informants, and were asked with care.

1.5 Roadmap

The thesis consists of six relatively short chapters, including this introduction. The second chapter starts off by presenting Restart and the repair movement. It places Restart within the larger discourse on repair in relation to a circular economy, the megalopolis London and how planned obsolescence makes repair a little-opted option in today's consumer society. Then in the following two analysis chapters, chapter three looks at peoples' initial motivations for attending the Restart Parites while chapter four disassembles the social practice of community repair, investigating how materiality, competences, cognitive processes and social situated learning shape the social practice of community repair. Chapter five analyses how narratives and a re-classification of the concept of repair attached new meanings to the concept of repair. The fifth chapter lifts the findings to discuss the innovative nature of community repair and attempts to illuminate how it contributes to the transition to a circular economy within social, ecologic and economic dimensions. I argue that while community repair may not be innovation in the Schumpeterian sense, what we see is an innovation in fostering

¹⁰ For overview of Letter of Consent, see 'Appendix 3'

sustainable practices, and in social innovation in cultural visions. It contributes as such to a circular economy by introducing more sustainable practices and principles that keep electronics in the loop, and reduce negative environmental impact from consumption and disposal. I claim on the other hand that the function of community repair in relation to economic dimensions is yet to be seen. The transparency and heightened awareness around repair may arguably lead to a greater repair industry within a circular economy, but it may also challenge competitive marked structures as it offers free repair where people pay with their time. The open source concept, in connection with online knowledge pool of repair manuals, allows the concept and practice of Restart to spread quickly, introducing novices to the practice in communities around the world.

2 Restart in the landscape of a circular economy

The social practice of community repair cannot be seen in isolation of a larger ecologic, political and social landscape. There is a growing discourse on the practice of repair, both within a global repair movement and in discussions within the European Union (EU) and the United Kingdom (UK) on a circular economy. Repair is increasingly becoming a hot topic with regards to decreasing the negative environmental impact from the electronic industry. The following chapter will introduce the many challenges related to high consumption patterns of electronics. It will highlight how Restart and a global repair movement aim to target these challenges. The chapter proceeds with a presentation of the EU and UK's interest in a circular economy. A circular economy is about leaving a linear consumption model so resources are kept within Europe and away from landfill, going 'in loops' (European Commission 2016a). It is Europe's main approach to lower the negative ecologic impact of electronics and hinder depletion of primary resources. The key tactic for 'closing the loops' is to encourage a transformation of the electronics industry, create better opportunities for commercial repair and systems for recycling (European Commission 2015b). The chapter concludes with a small discussion on why people in a consumer society, and the megalopolis London, may not consider repairing their electronic devices, thus highlighting some of the key barriers for people to take up the practice of repair.

2.1 The challenge of electronics

The electronic industry is the fastest growing industry worldwide, and at the same time, electronic waste is the fastest growing waste stream. It increases 4% per annum (Lundgren 2012). This is also the case in the United Kingdom (UK) where in 2014; 23.5 kg of electronic waste was produced per person (Step Initiative 2015). In comparison with the food, plastic and clothing industries, the sustainability of electronics has largely been left unquestioned in public, academic and political discussions. This applies to the whole life cycle of electronics, from design and

manufacturing to consumption and disposal. Uncovering the environmental and ethical challenges inherent to the entire life cycle of electronics is a sad act.

The increase in consumption and disposal of electronics contributes to climate change, depletion of non-renewable resources and environmental pollution. The carbon footprint of our high consumption of electronics should not be underestimated. A typical computer contains 1500-2000 components from all over the world. Producing a computer with a 17-inch screen demands 260 kg of fossil fuels, 22 kg of chemicals and 1500 kg of water. Because there are so many components in electronics, this is the same material 'volume' as to produce a middle sized car (Williams 2004). Heightening the recycling rates or producing more energy efficient devices would not necessarily reduce the impact. Using a life cycle assessment perspective we see that 81% of a computers total carbon footprint is released during the manufacturing, transport, consumption and waste management stages, compared to 19% being released during the entirety of its time in use (Williams 2004). Mainly because of technological improvements and rapid product obsolescence, the turnover of electronics is increasing; the average lifespan of computers has decreased from 4.5 years to 2 years between 1992 and 2005 (Widmer et al. 2005). This contributes to an increased demand for non-renewables such as metals, minerals, and fossil fuel (Lacy and Rutqvist 2015). The global demand for these resources increased by 80 per cent from 2000 to 2014, and key commodities such as oil, copper, cobalt, lithium, silver, lead, and tin is predicted to run out within the next 50 to 100 years (Lacy and Rutqvist 2015).

Legislation and enforcement to ensure satisfactory recycling are however largely absent around in the world. Europe currently recycles one third of all electronics (Huisman et al. 2015). A depletion of primary resources is continued when so few components are recycled. The existing recycling industry in Europe is not without faults either; of recycled electronics 80 per cent is shipped (often illegally) to developing countries like China, India, Ghana and Nigeria. Here they are often handled by hundreds of thousand informal workers exposed to great health hazards (Lundgren 2012). This may be seen as a global e-waste problem, but it is also arguably a problem related to the increase in consumption of electronics in general.

The rapid turnover of electronics leads to large-scale environmental pollution at both ends of a product's lifetime. Natural resource extraction supporting industrial manufacturing has repeatedly been seen to contribute to deforestation, water contamination, air pollution and soil degradation on all continents (Hansen and Wethal 2015). Most electronic devices contain a number of toxic materials and heavy metals such as lead, mercury and cadmium (Huisman et al. 2015). When ending up in landfills these are both great health hazards as well as environmental polluters. Forty per cent of the lead (a highly toxic material to humans) found in landfills stems from obsolete electronic items (Herat 2007). The pressure to extract raw materials in order to produce new consumer goods is also responsible for severe cases of human exploitation and dangerous working conditions (De Groene Zaak 2015, Lundgren 2012). In sum, this complex situation poses risks to human health, biodiversity and a balanced ecosystem.

2.1 The Restart Project

By introducing the world to community repair, The Restart Project aspires to change this bleak picture. It is a four-year-old social enterprise and charity based in London. It stands in contrast to government and industry initiatives to introduce a 'circular economy' through a grassroots, bottom-up approach. Restart 'encourages and empowers people to use their electronics longer in order to reduce waste' (2015a). They have catalysed a boom of free 'repair parties' or so-called 'Restart Parties' all over London where attendants drop in to fix and learn about restoring their broken electrical devices. Knowledgeable 'Restarters', keen to repair, help people out of their frustration over broken devices and contribute through a peer-to-peer repair process. Participants contribute by getting hands-on and involved. So far Restart has fixed and saved about 1.3 tonnes of electronics (The Restart Project 2016). Through this community based, practical approach, Restart attempts to encourage a discussion on the way we produce, consume, recycle and waste electronics. By encouraging this discussion on a local level, it is part of what the organisation calls the 'inner-circle' of the circular economy (The Restart Project 2015b).

Restart has since its initiation gained attention from politicians, businesses and laymen. Through providing free starting-kits for hosting Restart Parties, the Restart team has

spread its concept to more than eight countries. Restart has won prizes such as ‘Digital Heroes’ by TalkTalk (2015) and ‘London Leaders’ by the Sustainable Development Commission (2015), and has been featured in media such as the BBC, AFP, Telegraph and even ‘Dagens Næringsliv’ in Norway. By receiving funding from WRAP the organisation has been funded to develop a *Fixometer*, a tool to measure the CO₂ emissions saved by each repair, and is listed as one of the partners of WRAP’s Electronic Sustainability Action Plan - alongside businesses such as Microsoft and Dell. Restart may still be small. With so much attention it is clear that the team has hit a public nerve.

So what sparked such an initiative? Italian Ugo Vallauri and American Janet Gunter launched The Restart Project in 2012. They are two enthusiastic, social and knowledgeable people whose professional networks cover most of the world. When they first connected they shared altogether 15 years of experience working with communities in the Global South to introduce new technologies. Exposed to the ways in which communities - in particular Nigeria and East Timor - would hang on to, repair and take care of the things they owned, they both felt troubled upon returning to the Global North and seeing the rate at which people throw away things -especially electronics. Janet talked about this ‘wake up’ call during a Ted Talk in Brixton in London:

The same people who are so concerned going to the farmers market to get their ethical food, who are concerned about those plastic carrier bags, these are people who I would see replacing their laptop every year, or replacing their mobile every nine months (The Restart Project 2015b).

Ugo and Janet felt inspired by the Repair café movement, but seeing how neglected electronics were in the wider sustainability debate they decided to choose this specific focus. To them, rethinking consumption goes beyond questioning the morals of individuals’. It requires a critical examination of all stages of the life cycles of electronics; from non-transparent manufacturing processes, fast paced upgrade-cycles, barriers to longevity, cost-setting, absence of legislations demanding access to spare parts, or ethical standards for production. While their main focus is on working locally and reaching people face-to-face, they actively use blogs, twitter and podcasts to engage a wider community. Through positive messaging, highlighting how repair can

be fun, a great learning experience and make you feel good as you reduce waste, Ugo and Janet aim to inspire rather than shame and blame people into action while they also question the way we consume electronics.

They wish to be an inspiring ‘disruptor’ with a new and incredible alternative. Partly funded by grants and fundraising campaigns, they attempt to bridge into businesses to diversify Restart’s income, but also to be a challenger, reaching people in the Government and the industry who may not have come to their events otherwise. Asking Janet what she meant with disruptive she stated:

It’s like introducing an incredible alternative and then having businesses and local authorities step back and say: This is something I hadn’t imagined. Is this something emerging that is a fact? Something that I actually have to deal with? I think that is kind of what disruption is.

The Restart Project is also a social project. A central feature is to facilitate a space where people from all strands of society, with different age, sex, ethnic or financial backgrounds, can meet in a neutral environment. Meeting places that reduce social distance are rare in London where consumption patterns and the way you spend your money often is a deciding factor for who and where you meet others. To not have a set venue is central to the concept, and it gives Restart a larger audience than if it had focused on one particular group or minority. The social element is also reflected in the organisation’s online messaging where digital-inclusion, women and tech as well as the human ethics of production are reoccurring themes. Calling itself a ‘do-tank’, Restart encourages people from all strands of society to use the moment when electronics fail to reflect on the challenges related to society’s large scale consumption of electronics, but also to get hands on with repair.

2.2 The global repair movement

The Restart Project is part of a larger movement that aims to use community repair to spark a larger debate concerning the consumer society and the throwaway logic. The most significant other ‘players’ in the movement are the Repair Cafés (Repair Café 2015), the Fixit Clinics (Fixit Clinic 2016) and the online community hosted by open source online platform iFixit.com. The Repair Café’s (Repair Café 2015) and the Fixit

clinics were both started in 2009. They appeared individually from each other, but can similarly be traced back as responses to the financial crisis in 2007-08 (Rosner 2013). The Repair Café concept has its origin in the Netherlands but since starting it has spread across the globe with more than 900 café's worldwide at the moment. The café usually has a more general focus on repair and reuse, providing a fixed space with tools and people onsite to help with repair of all kinds, from bikes to clothes. The Fixit clinics, primarily based in the San Francisco Bay Area, have collectively held more than 140 repair clinics since starting in 2009 (Rosner 2013). Similar to Restart, these clinics are also community-based workshops where people can come to learn and fix their broken electronics.

iFixit.com is, by contrast, an online community. They support many of the same ideas and values as Restart and have a political profile. It is a core part of the repair movement. By offering a solid online, pool of knowledge it supports repairs of all kinds. While YouTube.org is a big facilitator of online repair video guides (Lee-Woolf et al. 2012), iFixit.com is central to the community as it focuses only on repair of electronics. It aims to be an open-source wiki page offering 'The free repair guide for everything, written by everyone' (iFixit 2016). Here keen individuals upload videos, pictures and instructions. They share their knowledge about different devices, faults and how to fix them, often through step-by-step film instructions that guide the audience through the process. As of January 2016, iFixit could pride themselves on hosting 18,810 free manuals for 4,914 different devices, providing 70,624 different solutions. The site is funded through selling tool kits and spare parts. Many are offered with a life long warranty, in line with the values of the movement. Although these websites are not formally tied to Restart, I argue their role is important to consider in the attempt to understand the social practice of community repair. Many of the repair processes at the Restart Parties begin with a search through either youtube.org or iFixit.com, looking for help from the online community. They provide Restarters with a huge knowledge base, free and available at any time.

In June 2015, iFixit and the Repair Café foundation joined forces with Friends of the Earth Europe, the European Environmental Bureau, Zero Waste Europe, ECOS – Earth Friendly Products and Reuse to form a joint mission statement to strengthen the repair agenda (iFixit et al. 2015) in Europe. The statement was aimed to drive forward the

movement for sustainable consumption and production by working to improve product durability and reparability. The statement is targeted at the EU in particular, and presents a list of policy changes and actions that should be followed to facilitate a growing repair culture within a circular economy. The organisations suggest, among others, that manufacturers should be required to provide independent re-use and repair organizations with all the information needed, such as manuals, machine codes, etcetera in order to ‘ensure the full functioning and serviceability of their products over their entire lifetime’ (2015, 3); that consumables are adhesive-free and easy to replace with common tools, that spare parts are widely available and affordable; that taxes on repair services are lowered; that consumers are to be informed by the expected lifespan of a product, and that the EU in related terms should have a system for measuring the durability and reparability of products - preferably also by setting design requirements for products to guarantee a minimum life time (iFixit et al. 2015). Restart is not a co-writer of the statement, but many of the same arguments and thoughts were echoed by the Restarters and within their community. The mission statement is important as it reflects the political dimensions of the movement from hands on local, community repair to political lobbying for more durable, repairable and sustainable electronics within the EU.

It is also relevant to see Restart in the context of a growing movement focusing on community-based solutions to transition to a more sustainable society. Specially forwarded by the Transition Network (TN), this approach is characterised by local food and money systems, but also practical solutions that engage the community in activities such as re-skilling. The aim is to build resilient and fossil-independent local communities (Hopkins 2008). While Restart is not a Transition Movement initiative as such, they were listed in the TN’s REconomy report over the ‘UK’s top 20 ‘Transition oriented’ social enterprises’ following the TN’s values in 2013 (Denton and Ward 2013). To understand the backdrop of the movement and the context chosen for this thesis I will further introduce the political and economic backdrop for the movement, along with relevant stakeholders and legislations.

2.3 A Circular Economy

A declining economy and a pressured environment has kick-started conversations in the European Union (EU) on how to create a transition to a circular economy with zero waste. WRAP defines a circular economy as ‘an alternative to a traditional linear economy (based on making, using and, disposing) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life’ (WRAP 2016b). It is an increased scarcity of primary resources that has forwarded this critique of the traditional concept of a linear consumption line, or a ‘cradle-to-grave’ pattern, as well as the economic loss and environmental pollution attached to loss of resources (De Groene Zaak 2015, The European Commission 2015, Lacy and Rutqvist 2015). Defra claims that redefining waste as a resource is not only valuable to prevent environmental degradation, but also a key to developing new job opportunities and move the European economy beyond stagnation (2013a). According to the EU Commission this amounts to 600 billion in net savings for European companies, and up to 2 million new jobs by 2030 (The European Commission 2015). As such it represents a paradigm shift in the way we think about production and consumption of goods and services (Atherton 2015).

This is relevant to Restart’s agenda firstly because a larger repair industry is key within a circular model, and secondly because it encourages us to rethink waste and the current throwaway attitude. The model by Ellen McArthur Foundation (2015) illustrates how the circular economy is built on several loops to ensure that all technical and biological materials are kept within the ‘value circles’. The EC has started extensive work on how we transition to a circular economy and how we can ‘close the loop’ ensuring resources stay in the circular economy, and are not lost through e.g. lack of recycling. It includes revised legislative proposals on waste, and also an Action Plan that aims to target all phases of the life cycle of products (2015a). The eco-directive is a key component of the strategy. With regards to electronics it has so far mainly been concerned with larger electrical appliances, setting criteria for energy efficiency and labelling for these (European Commission 2016c, b). The EC claim the onward focus will be to prevent waste by pushing for more re-use, re-manufacturing and repair. To incentivise the transition, they intend to start develop

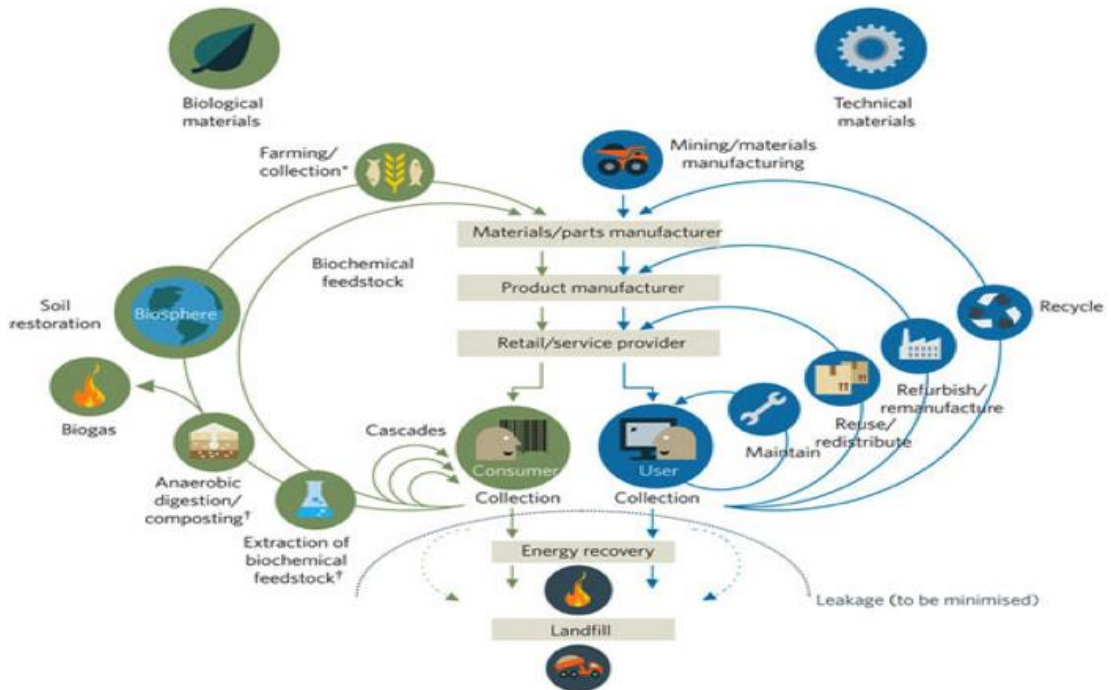


Figure 1. Illustration of the model for a Circular Economy.

(Ellen MacArthur Foundation 2015)

criteria's in 2016 for better product design that pushes for reparability, durability, and recyclability. The aim is a new set of standards for material efficiency by 2019. It is not clear to what extent this also applies to electronics, and especially small electronic devices. It may seem that the focus is mostly on recycling and not repair of electronics. Statements such as 'the cost of remanufacturing mobile phones could be halved if it were easier to take them apart' is rather emphasised to highlight the importance of making electronics displays so they can be dismantled and recycled easily, rather than for the importance of repair (2015a). This is supported by their very clear cut statement, which only indicates that they will: 'consider product requirements under the Ecodesign directive to improve the recyclability of electronic devices and the development of high-efficiency recycling standards'. This is important to facilitating a recovering of critical raw materials (CRM) (VDE 2016, European Commission 2015a). Smartphones for example may contain up to 50 different kinds of metals including CRMs, and these are not easy to recover if the phones are not designed for this purpose. Other concrete proposals are to identify issues of planned obsolescence through an independent testing programme of products, set requirements for making repair information and spare parts available, and differentiate the Extended Producer

Responsibility scheme¹¹ and reclassify recycled materials as non-waste, in order to make design for recycling and reuse economically favourable.

The model supports, however, an increase in consumption, arguing that it is compatible with environmental sustainability as long as we rethink waste as a resource (Lacy and Rutqvist 2015). It does not challenge the economic growth paradigm. Its main focus in this respect is on creating new markets and business models that encourages the transition (European Commission 2015b, Ellen MacArthur Foundation 2015, Defra 2013a, European Commission 2016a). Although Defra do acknowledge that households may play a role if they are finding economic and environmental reasons for being less wasteful (Defra 2013b). Lacy and Rutqvist state that by eliminating the concept of ‘waste’, companies in a circular economy can gain the circular advantage while they can also ‘enable customers to make the most out of products; facilitate trade between users; supply services that monetize goods not in use; offer convenient buy-back solutions; and sell services instead of products’ (Lacy and Rutqvist 2015, xviii). This fits the UK vision that by 2020, ‘consumers will be able to choose from an ever increasing range of products and services that fully meet their needs, but through design maximise resource productivity and minimise waste’ (Defra 2013b, 23). While Atherton argues that the loops are to be taken care of by either the government, industry or consumers (Atherton 2015), the EC are mainly focused on industry as driver and the government as facilitator. Defra states that ‘Government’s role must be to get out of people’s hair; to set the conditions and guidelines that allow the market, businesses, local authorities and people to make the changes that will propel us towards a more circular and sustainable economy’. Potential barriers to a successful transition are predicted to be failures in the market, like conflicts in interest along the value chains, or lack of information for investors and consumers. Governance and regulatory failures, like ineffective or insufficient policy tools, resulting in, for example, a lack of harmonised standards, are also suggested. What the role of the European citizens should be, who arguably constitute the inner circles - not only as consumers - is to a great degree left in the open. Is it important for the transition that community initiatives like Restart occupy this space?

¹¹ This is an old scheme that forces the ‘polluter to pay’ for the end-of-life costs (OECD 2016).

The analysis of sustainability of a circular economy is not the topic of this thesis. Yet it is important to recognise that not everyone agrees that this model will contribute to greater environmental sustainability. The capitalist growth paradigm encourages a continuous increase in consumption within most sectors to secure a growing economy. While it is largely argued this trend can continue with a circular economy, we may wonder if this is not a distraction from questioning our consumption patterns. The ‘rebound-effect’ has repeatedly demonstrated that while increase in efficiency the last 40 years has saved energy and resources, the increase we have seen in consumption world wide is still leading to a total increase in both (Vittersø et al. 2016). Lacy and Rutqvist argue a circular economy will not be just about efficiency (2015). A car is only used 10% of its lifetime. Through shifts in ownership, new business models can enable us to share resources in a new way. Then again, while electronic devices are becoming more energy efficient we are also using them more, resulting in more energy consumed altogether. This would arguably still be the case in a circular economy where the majority of new business models rely on digital technologies (Lacy and Rutqvist 2015). Designing products to go in a loop does not necessarily lower CO₂ emissions either. Gutowski et al. compared energy savings between manufacturing and remanufacturing of 25 different products, from furniture to computers, and concluded that remanufacturing in general would not save energy (Gutowski et al. 2011). The exception was when the remanufacturing process demanded less energy from, for example, transport or did not require any new primary materials. Adding to this, the potential for resource-efficiency is also reduced by a number of constraints. There is usually a limit to the amount of cycles different materials can handle before they lose their value and usability (Braungart and McDonough 2009). While it is great that all aluminium in the world is recycled, an increase in production leads to a continued extraction of primary sources. A circular economy offers a huge leap in mind-set from linear consumption patterns. Yet, the complex picture demonstrates that to increase durable products and encourage lower consumption patterns in ‘slow turning’ circles may be equally important to reach true sustainability.

2.4 The electronic industry

The Electrical and Electronic Equipment Sustainability Action Plan (ESAP¹²) is the main component of Defra’s strategy to push the electronic industry to transition into a circular economy. The work on ESAP started in 2013 being led by WRAP. The UK government has historically been WRAP’s sole funder, but more recently it has started to be part-funded by the European Commission and private actors. As such WRAP also contributes to the European Commission’s Action Plan for transitioning to a Circular economy.

ESAP focuses on consumer electronics and household appliances. For the electronics sector, the cycles are primarily seen as a commercial circle that facilitates returns, repairs, re-selling, re-use and remanufacturing (as in the model made by Ellen MacArthur Foundation), and a circle concerned with recycling. As seen in the ESAP

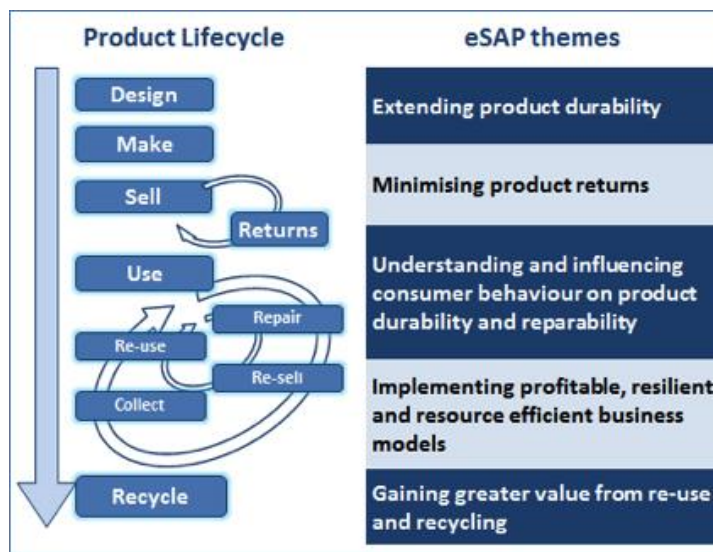


Figure 2. Illustration of focus areas of the Electrical and Electronic Equipment Sustainability Action Plan (WRAP 2015)

model, within these cycles ESAP targets the whole lifecycle of products. The core working themes are to extend product durability, minimise product returns, understand and influence consumer behaviour on product durability and reparability, implement profitable, resilient and resource efficient business models and gain greater value from re-use and recycling. WRAP has estimated that by changing the way electronics are designed, made, bought and disposed of, the UK could reduce their carbon footprint by up to 15% and add £800 million GDP to the economy (WRAP 2016a).

¹² Although WRAP writes the acronym ESAP in lower case, I have decided to write it in upper case for clarity.

At the time of writing there are more than 60 signatories on the programme, from businesses such as Microsoft, DELL and Samsung, to civil society groups, universities and others like Oxfam, iFixit, Restart and Loughborough University. Though this is impressive, WRAP representatives were clear that progress is slow, which exemplifies the difficulties in creating a transition on the ground. A central focus is the goal to increase product lifetime and durability, and this is controversial within the industry. The focus was chosen as WRAP identified that more than eight of ten consumers would be interested in paying an increase of more than 30 per cent for household appliances, such as fridges and vacuum cleaners, if they were advertised to last longer and have a longer standard guarantee or warranty (WRAP 2013, 4). This is strong evidence that more durable products make economic sense, and are preferred among consumers. Still, while most brands are interested in creating better quality products, they are pressured by resellers and especially the buying teams, who mostly focus on pressing down prices, and not look at the levels of product returns or failure within products. Wrap highlighted in our interview how such conflicts in interest are barriers to make the industry transition to a circular economy. In an industry where there historically has been no focus on corporate social responsibility, and a lack of consumer pressure for the industry to take more ethical and environmental considerations into account, large-scale changes may seem far away.

2.5 Commercial repair

Repair has increasingly entered the official agenda in relation to reducing electronic waste. The European Commission's proposal for designing a circular economy targets actors involved in the entire consumption chain: producers, sellers, consumers and recyclers. In the UK repair is listed as one of five "pathways" to prevent electronic waste and prolong longevity (Defra 2013b). WRAP has found that 23% of e-waste in the UK could be reused or economically repaired (WRAP 2011). Commercial actors are seen as main drivers to create a repair industry within the UK, and ESAP emphasize that a repair industry is an opportunity to develop new income streams and grow brand recognition with partners and costumers (WRAP 2015). ESAP encourages change by seeking to collaborate and share research evidence gathered by WRAP with the industry (WRAP 2015). A particular focus is to develop new business models that

shift the ownership and responsibility for products from the consumer to the producer or retailer. This is hoped to create motivation for making more durable products, enabling repair (WRAP 2016a), and reduce the need for the consumer to take action for getting devices repaired (REBus et al. 2016).

A greater repair industry may thus not mean that products will become more repairable. The WRAP representative commented that a shift in responsibility for electronics and the repair of them could also be initiated through the Internet of Things and an introduction of smart devices that can notify the retailer or producer directly without the consumer needing to take action. The characteristics of this mind-set become even clearer in contrast with Fairphone's approach that encourages repair through design. As a small company from the Netherlands, it presented in 2016 the world with a completely repairable phone that is also the world's first ethical and environmentally friendly sourced phone. The aim is that consumers can easily replace the screen if it breaks by just sliding the screen off (2016).

The traditional repair shops, repairing everything from sewing machines to kettles and fridges, are disappearing. Larger commercial actors such as Curry's PC World and Dixons Carphone Warehouse are however now offering repairs of more expensive electronics. Through programmes like KnowHow or the Geek Squad they repair computers and smartphones. KnowHow was established in 2011 in collaboration with WRAP and is the biggest actor offering a broad range of repair-related service through various Care Plans in the UK. Here people can get help with everything from delivery, set up, support, repair and protection. Quoting their pamphlet: 'If you're not keen on doing it yourself, we can set up your new product for you' (KnowHow 2014). These services can on the other hand be costly, and Care Plans range between £49 – £245 for two years depending on the value of your product. Specialised Apple repair services, certified by Apple, have also appeared to a larger extent. Yet, while their computers are still repairable in a commercial setting, they are increasingly more close in nature to DIY repairs (Jackson and Kang 2014).

Smaller independent corner repair shops, offering cheap repairs for the same type of devices are also appearing. There is a myriad of these smaller, uncertified repairers around in London. Knowledge is to a large extent built on know-how, trial and failure.

They often operate with a no fix-no fee deal, and get a repair done within a couple of hours in the store. Lovephone, representing one of the more sophisticated independent repair shops, voiced many of the same concerns as Restart: a lack of openness within the industry around manuals, problems with access to good quality, spare parts, design for reparability, and opportunities to become certified for independent repair shops who do not operate as resellers.

2.6 Recycling electronics

Recycling is another strategy to close the circles within a circular economy. The shortcomings of this system demonstrate how far we are in reality from a circular economy. Legislations related to waste management of electrical devices are far from developed (Herat 2007). Legislations regulating WEEE (Waste Electrical and Electronic Equipment) in the UK are mainly based on the EU's WEEE Directive, aiming to streamline collection of WEEE across Europe. The legislation was to be fully implemented in 2014, but still faces massive challenges. Only 35% of all electronics in Europe are recycled (Huisman et al. 2015)¹³. The role of consumers becomes clear when one considers that 750,000 tonnes of WEEE is small appliances ending their life in household waste bins (Huisman et al. 2015, 6). The situation is largely the same in the UK, where no national system exists for collecting WEEE.

During my interview with Hackney Council it became clear that it is up to each local authority as to what extent electronic recycling is prioritised and which system they wish to use. The first time that local councils were ever offered funding for targeting recycling of electronics was during my stay in London, autumn 2015. This poor situation results in a scattered approach, and there are almost as many different strategies as there are local authorities in London – hence 33. Local authorities share the goal of reaching a recycling target of 50% of household waste by 2020, but - as there is no separation between garden waste and electronics - there are few economic incentives to prioritise recycling of electronics. Smaller electronic devices represent a low volume despite their value, and contribute little to reaching the targets.

¹³ To add to the challenge of handling electronic waste, 1.3 million tonnes were illegally exported out of Europe, 70% of it estimated to be destined for reuse or repair elsewhere.

While recycling is considered a waste management strategy, repair is considered a waste minimisation strategy (Tonglet, Phillips, and Bates 2004). Considering that no targets were set for waste minimisation, this was largely neglected by the local authorities. A few of the local authorities such as Hackney, Romford and Brixton have collaborated with Restart as a part of their recycling strategy, but they are in the minority. This bleak picture demonstrates the poor level of management of electrical and electric waste management, and how far the local reality is from the closed loop system of a circular economy.

2.7 To repair within a consumer society

Consumption can be defined as ‘the acquisition and use of things, including goods and products’ (Wilhite 2008, 3). In a consumer-driven society consumption is seen as the primary goal for social and economic activity and citizens ‘treat high levels of consumption as indicative of social success and personal happiness and hence choose consuming as their overriding life goal’ (Campbell 1995, 100). This social paradigm, where a good life became linked to consumption, took off in the 19th century. The act of consumption was redefined not as an act of greed but as a *need*, serving both the individual, the economy, and hence society at large (Mason 2015a, Carrier and Miller 1999). This trend is no longer unique to Northern countries, and economic growth in the South has led to large-scale consumption of high-tech products across the whole world (UNDP 2013, Hansen and Wethal 2015). To understand the potential barriers for closing the loop through either commercial or community repair, it is relevant to briefly discuss why others may not even consider to repair their devices. Many of these are affected by mechanisms at the core of a consumer society, often summed up as planned obsolescence. Bernard London invented the end of life product concept in 1932, introducing ‘planned obsolescence’ as the answer to fuel the economy and end the depression (1932).

Planned obsolescence can be traced to very specific design decision, like when printers are to shut down after printing a certain amount of pages or when light bulbs are to only have a lifespan of a certain amount of hours (Maitre-Ekern and Dalhammer Forthcoming). When devices are not scripted for durability or repair, the person may be forced to buy a new one, as it may not actually be possible to repair it. Many

modern devices are deliberately designed to make maintenance and repair foreclosed (Verbeek 2004). This trend has only propelled the last decades. When the magazine ‘Which?’¹⁴ examined the reparability of washing machines in the UK July 2015, they found that in six out of eight machines, the drum was sealed. This left the machines impossible to repair for faults that machines made in the 1980’s and 90’s easily could have been repaired for (Which? 2015a). A continuous upgrade cycle of software that demands more speed, more memory and higher power is another way in which computers and smartphones easily become dysfunctional and obsolete (Herat 2007).

On the other hand, people may in many cases not be even remotely interested in hanging on to or taking care of their items past their peaks. WRAP found that many items are thrown away a long time before they actually break down (2011). Brooks Stevens popularised the term ‘planned obsolescence’ in 1954, defining it as ‘Instilling in the buyer the desire to own something a little newer, a little better, a little sooner than is necessary’ (Adamson 2003, 129). Psychological or perceived obsolescence happens when fashion and trends, often communicated through powerful marketing, fuel our desire to buy new as we feel our old devices are out-dated (Vittersø et al. 2016). Looking at consumption patterns in UK households ‘being up to date’ was one of the prime reasons why people would get rid of working devices (Cooper 2005).

It is often not economically beneficial for people to repair. When the costs of repair surpass the cost of investing in a new item, this is in many ways planned obsolescence on a systemic level, making it more beneficial for people to continuously upgrade and buy new. Although this will also depend on the item: A broken iPhone screen might motivate the owner to repair it as the costs of buying a new one is significant, in contrast to a broken kettle that might be replaced with little economic loss. However, if people are given electronic devices as part of their work contract, to upgrade, repair or buy new may not even be an individual choice. High repair costs can, due to high taxation of repair services or a difficulty in undertaking repairs, lead to heightened

14 Which? is a charity and magazine working to ‘make individuals as powerful as the organisations they deal with’. They are the largest consumer body in the UK with over 680,000 subscribing members (Which? 2015b).

costs. When multinational corporations are allowed to produce their goods as cheap as possible (with as few regulations as possible) (Klein 2014), low prices also make it next to impossible to compete in price savings for repair services. Lack of information on how long a product is meant to last, or how repairable it is, may also contribute to poor consumer choices where economic savings on choosing a durable, repairable product is taken into the economic calculation, leading to a segmentation of the throwaway tradition. My informants also mentioned lack of trust in commercial repair as a reason why they would not use the service. They felt there was a lack of transparency, and often anticipated, without actually knowing, that they would had to pay even if the repairers did not manage to fix the item, thus having to pay extra. Cost and convenience of repairing commercially in comparison to buying a new item plays a vital part in the individual consumers rationale.

Shove, Pantzar and Watson wrote that practices are shaped by the ‘rhythm of society’ (Lefebvre 2004 in Shove, Pantzar, and Watson 2012), as people sequence, coordinate and make their own schedules. Fitting in the practice of community repair is thus affected by what other practices the participants fill their own life with. Community repair can be time consuming. Of my informants outside Restart, time was the biggest issue: ‘People in a modern society do not have time. We don’t have time to consider what is the more sustainable or considerate choice all the time, and then go through something as lengthy as a three hour repair,’ said Maya. Katharina, one of my informants voiced the same critique: ‘Time and money are big factors for most people, and sometimes time weigh more than money.’

Do It Yourself repair of electronics is an inexpensive option, but a seldom opted for option. This will be more thoroughly looked at in the following chapters. There is little culture for repairing electronics, even less for community repair, and all of the above factors shape this tradition. In order to make repair or maintenance of electronics the preferred choice it may seem that making consumption of new devices less compelling is vital, and as such, as much of a political choice as one of individual rationale. It will in this respect be interesting to see the outcome of the EC’s eco-directive. There is a politics of repair and maintenance that affect how the future of repair will pan out (Graham and Thrift 2007).

2.8 The area of fieldwork: London

London is a megalopolis. It is a global financial centre, and in many ways an epitome of consumerism. It is valued for its diversity, variety of cultures and endless amounts of possibilities for things to see and explore. Walking through London I noticed how the city is filled with temptations. On every corner, on every street, in every new borough you find new cafes, bars and shops in all shapes and forms. In London you can do anything and explore the whole world within the city borders. My informants loved it for these reasons - especially for its diversity of cultures and different things one could see and do. Yet, London is also an expensive and demanding city where most people live a fast-paced lifestyle, and my informants would also mention negative traits, such as the pressure, the competitiveness and the high housing prices as aspects of the pulsing city. This often led to a romanticising of withdrawing from a consumer culture, and the thought of living a less fast-paced life. They valued in this respect counter-initiatives such as meet ups and other more community-based initiatives. They saw both the golden and the dark side of the consumerist culture, inherent in structure of London. As a backdrop for discussing community repair the city represent all the paradoxes of a modern society.

2.9 Summary

The above chapter has attempted to give an overview of the social, economic and ecological context that Restart operates in. The most obvious point is what little headway we have made in terms of creating sustainable electronics. There are large-scale environmental and ethical challenges related to electronics that are only increasing through the rise in consumption. Restart attempts to contest these structures, standing partly together with a global repair movement, questioning the throwaway attitude and a consumer society of electronics. Repair is also on the agenda in the UK through conversations on circular economy. ESAP, the new eco-directive and a bigger repair industry being the most significant attempts to push change. The government is largely trusting the market, attempting to facilitate new circular business models it hopes will drive change, subsequently boosting the economy, creating new jobs and

supporting environmental sustainability. The change in mind-set that Restart pushes for is largely absent from the discourse.

3 Why participants choose community repair

Community repair has grown as a movement over the past four years. In between being an out-dated practice or a prefiguration for the future, it is central to look into who it is that does repair at the Restart Parties and what attracts them to do so. The main focus of this chapter is to explore participant's motivations and explanations for choosing community repair; looking into issues of material, moral, emotional and economic factors, in addition to issues of time. The chapter will start-off with defining community repair and present an empirical account of a Restart Party in Kentish town, a quite central suburb of London, north of the city centre. To deepen our understanding of why people choose community repair, the chapter will continue to discuss people's motivations by unfolding their physical and cognitive dispositions, as part of their *habitus*. While on the surface the prime motivation might seem to be to fix their object: the slow-running computer, the tablet or recording machine, the informants were clear they had several motivations for spending time on this practice, such as gaining knowledge and to not be wasteful.

3.1 Defining community repair

Repair can be conceptualised as 'the process of sustaining, managing, and repurposing technology in order to cope with attrition and regressive change' (Rosner and Turner 2014, 1). Following Sennett there are three ways to perform a repair: Making a damaged object seem just like new, improving its operation, or altering it altogether' (2012, 212). In more technical terms these strategies consist of 'restoration, remediation and reconfiguration' (2012, 212). In other words, repairs can both be static and dynamic, placing them somewhere along the continuum between making and repairing (Sennett 2008). Community repair is a collaborative environment where people come to undertake all these types of repairs together. The term 'community repair' is mainly used referring to Restart Parties, unless stated otherwise. The term community repair is used to emphasize that there is a relevance also to initiatives that are not Restart Parties.

Community repair can also be characterised as a space that facilitates a moment of communal reflection. From the ‘broken world perspective’ repair is a practice that follows a disruptive moment of failure: a point in time during the lifecycle of a product. Failures halt the life of an item as well as the life of the owner, offering a range of new pathways. Being one of these pathways, community repair may offer a place where communal reflection on the experience of attrition and regressive change are encouraged (Brook 2012, Orr 1990).

3.2 Empirical account: Restart Party – Kentish town

The Restart Parties form the core of Restart’s activities, so visiting them became a central focal point during my fieldwork in London. While every Restart Party was different - with many new people, different devices and in different locations - the atmosphere was often the same: there was a sense of ‘buzzing’ while people took apart, opened up and investigated different devices. The atmosphere could be either extremely concentrated or lightened up with people laughing and joking. People would gather around certain repairs, reminding me almost of sitting around a campfire, watching as a story was unfold, following the most exciting times of the repair process - like when the Restarter and volunteer finally managed to open up a laptop after a prolonged struggle to find all its screws, or when it came to actually turning on a device again to check if it would come back to life. Other times people would just sit two-by-two on tables, absorbed in their own project, or perhaps standing or sitting bent over to get an even better view of the devices being scrutinized, discussed and reflected upon.

Though repairing electronic devices can seem like a mundane, straightforward practice, it quickly became clear that this was a process that could be full of fainthearted moments and strong emotions as participants and Restarters worked their way through the repairs. The practice was challenging to novices who were unsure about what to expect next in the process, but could also be fun and thrilling as they did not know what to anticipate and whether the device would actually work again afterwards. Often I followed these repair journeys from start to end. How participants

journeyed through these repairs became a central part of how I came to understand the social practice of repair, and the role of this physical community to enable repair practices. One such repair process that I took part in is documented in the following account where the owner, Mark, wanted to replace the broken screen of his Fairphone 1. It exemplified in particular the rollercoaster journey that repairing can be.

Alex, the Restarter, and Mark the owner of the Fairphone 1, were following a 28-steps guide on iFixit.com on 'How to change your broken Fairphone 1 screen'. This Restart Party was in Kentish town community centre, on a Wednesday evening in July. Mark had found the repair guidelines at home, but had not felt confident enough to go ahead with the process by himself. He and Alex had come to the end of disassembling the phone when Alex read the very final sentence aloud: 'Do not remove the yellow tape covering the touch sensor chip. If you do, your phone may not work after reassembly'. This was exactly what Alex had just done. He stood up instantly after reading the text, clutching his head in despair. There were four of us at the table and we shared a collective sense of instant worry. Sophie, the fourth person, was working to fix the screen on a different Fairphone. She responded quickly and tried to solve the situation by asking if the yellow tag could just be put back on again. Taking the tweezers she picked up the tiny, yellow sticker and put it back on carefully. After spending an hour of carefully taking apart the Fairphone, the situation was quite absurd. But although the process was complicated, it had been going well until that point. Suddenly it had changed. Although Alex was very knowledgeable about electronic repairs and was an experienced Restarter, he was clearly worried. He was turning pale and kept repeating "I am so, so sorry", adding "It says that you shouldn't take it off right here, but I just didn't read it all the way through properly". It was clear that he felt both responsible for the process and guilty for the turn of the situation. Mark, on the other hand was completely new to repair and completely unsure about what to expect. He had no basis for knowing whether putting the yellow tag back on would have made any difference, and just had to rely on Sophie and Alex's suggestions; and to wait and see. Earlier on in the process he had already stated several times that it felt as if he was 'hallucinating', doing something this technical, adding "My boyfriend would never believe it if he saw me now".

Alex and Mark started to reassemble the phone, slowly putting one piece back at a time. The yellow strip was not mentioned, and Alex worked closely with Mark to ensure everything was done correctly. I asked him at this stage why he had a Fairphone. He seemed surprised about the question and answered that he cared where and how his things were produced.

Sophie, on the opposite side of the table, had actually brought two Fairphones along. She wanted to swap the broken screen on one phone to another phone that had a broken microphone, with the thinking that perhaps she could get one of them to then work properly. She also claimed to have never fixed anything electrical before, but took both phones apart and put them back together again in a way that was seemingly intuitive - as if she was completing a puzzle that she already knew. Her fingers were quick and she neatly put all the things back into place: screws, metal bits and fabrics fastened with Velcro. She stated that she enjoyed the process, adding: “It is a lot of fun, but you know, I probably wouldn’t do this if I was on my own at home. It is a very different thing to do it here”. It was clear she was referencing the social environment [of Restart], and the mutual support she found in doing the process with others.

I followed Sophie’s process for a while until the time came for Mark to try and turn on his phone. At this point everything had been put back together. The four of us stood around the phone quietly watching and leaning in to see its screen. Mark pushed the ‘ON’ button. As the light turned on, and the phone showed the first sign of a half full battery, the tension that had been building was released in what felt like an instant. A big “Yes!” and “Oh my god!” was released into the room. Mark threw his head back in relief and joy and Alex looked like he was about 10kg lighter. Smiling, Mark exclaimed “Oh my, I am so happy – it feels like I have just survived Titanic”. He laughed and confessed how the phone felt like his baby. He was so relieved.

At this point the whole room was packing up. The Restart Party had come to an end. Many had managed to get their things fixed and were both happy and relieved. For both Restarters and participants, the repair journey could be a process with unexpected moments that required patience, confidence and faith that everything would turn out well. While not all repair processes were as emotional as the one described here, the

process of repairing is not straightforward. In this lay also much of the fascination for both Restarters and participants. As we were leaving Kentish town community centre Mark thanked Alex many times. He was immensely grateful and he claimed he wanted to tell all his friends about Restart.

3.3 Discovering the Restart Parties

Before I go on to explore what motivated participants to visit Restart, it is worth looking briefly to how participants had found the initiative in the first place. Although knowledge and information is not necessarily enough for people to take action (Nordgaard 2001), it is a crucial that people know about the option for the concept to grow. Many of my informants had been to several Restart Parties after they had discovered Restart. They were certain the main factor for why people would not go there was simply because they did not know about it. Many participants had heard about Restart through media sources such as the BBC, the podcast The World Service, or through online news articles. Others had heard about it through community groups that collaborate with Restart; through The Rubbish Diet (a community initiative aiming to help participants to reduce waste), Transition Town Tooting, environmental groups like Friends of the Earth or local community centres, councils or relevant places like the ReMakery in Brixton – a place for locals to make and remake things. Twitter, Facebook or meetup.org – a commonly used website for showcasing especially community events held in London, were also common sources. Others had simply walked past the event, or heard about it through friends.

None of the participants I talked to had however found Restart because they actually had searched for the option of 'community repair'. As one women reflected: 'Before I heard about it on the radio, the concept (...) that there were communities repairing stuff for environmental reasons, had not even crossed my mind'. Though there is a growing interest and support for the concept, it demonstrates clearly that the concept is new to most participants. Most had in one way or another stumbled across it coincidentally. That many had discovered Restart through generic media shows that the initiative has reached people beyond those who already are in networks of similar environmental or community groups. That people who have not been exposed to information about the initiative, might not have any clue that the concept of

community repair exists, highlights that travelling across time and space is key for the concept to grow.

3.4 Wishing to not be wasteful

With regards to age, sex, socio-economic background and ethnicity, there were a variety of people who attended the Restart Parties. Participants varied from high school students, working professionals to pensioners. Yet, habits and practices of not being wasteful were repeatedly linked back to growing up with non-wasteful everyday practices in their childhood, where this concept stood strong as resources were saved out of necessity. ‘I have never liked the waste culture before. We were refugees, and we had to save things because we might run out, but it is also a Muslim thing (...) Through my family and my cultural heritage I was brought up like this’. The practice of not being wasteful was most common among the participants who had grown up (often reinforced by travels) in the Global South or who were second-generation immigrants in London with parents who still held these practices. My informants with similar views who had European heritage had often worked or spent longer amounts of time in areas where resources were scarce. Katharina commented:

When I work overseas we don't have those resources (...). So of course anything will be repaired if there is any possible way of repairing it, or we try to make things up out of nothing. When I come back from these places I always think I have got too much - I don't need all these things.

Attending Restart Parties fitted into the participants habitus for not being wasteful, adding an option to the spectrum of solutions they were already disposed to desire.

Participants' visit to the Restart Parties had often been motivated by a desire to not be wasteful. As items break down, owners are met with a range of questions as to what to do next. For most people these questions may quickly be solved as they substitute their old item for a new and shinier one. For the participants I met at the Restart Parties this did not seem to be a good option. They had for different reasons preferred not to get rid of their old devices. ‘If I really want something I will put the effort into fix it or to mend it, whether that is a device or a relationship’ said Katharina. Community repair met this desire and was seen (by her) as a good option.

It varied to what degree practices of repairing and not being wasteful was driven by an overarching political or environmental agenda. In other words, it differed to what extent participants were cognitively disposed to also be interested in the Restart agenda. Nina saw it as environmentally important, but primarily as just an ordinary practice. ‘When I go back to my country (Malaysia), I share my knowledge with my parents and friends. I think the media of these things hasn’t reached them’. This was also the case for Emma who reflected that although waste was a terrible thing in her family, it was never a part of their “politics”. Without necessarily calling themselves *environmentalists*, both stated however firmly that to them, not being wasteful was important in the larger picture of environmental sustainability. Sita on the contrary, exclaimed repeatedly: ‘What a waste!’ when talking about how she had observed peoples throwaway behaviour, but commented ‘How are you going to make people care (about the environment)? Personally I feel so detached from the environment’. Not calling themselves environmentalists, and claiming this identity, did therefore not mean they did not care about not being wasteful. Restart Parties were in this sense appealing as it both enabled the *practice* of not being wasteful, and as it gave an opportunity to be non-wasteful for political and environmental reasons.

My informants’ attitudes towards not being wasteful were tightly interlinked with their attitudes towards consumption. While most expressed that being wasteful was negative, none seemed to be overly excited about consumption in general. ‘I hate shopping, or I have a list and a very specific idea of what I want. I am not someone who browses’ Katharina voiced plainly. The practice of reducing waste was thus not overly challenged by a desire to consume. It was also linked to a pleasure in continuing an interaction with the items they already owned: ‘I suppose I take more pleasure from keeping things going, keeping them running efficiently, keeping things working, rather than just requiring a new one’ said Simon. Although most of my informants enjoyed having and using electronics, some more than others, it did not necessarily mean that they felt a desire to buy new electronics. Nick replied the following to whether he liked acquiring new electronics: ‘I do, I do... But then it doesn’t satisfy me for very long, so I make a habit of not buying stuff I don’t need’. This view was repeated in similar conversations where informants commented on other people’s consumption patterns. Emma uttered:

I don't really like it when people, you know their contract ends, and they feel they need a new one. I have been to social gatherings you know and they say: 'Oh well my contract ends, I'm gonna get a, you know, iPhone white. I don't like the colour of my phone, I think I would like to have a white one, and have the latest one, or whatever' And I think, why? You're phone is perfectly fine... I have that attitude, I am going to use my smartphone until it totally can't be used anymore. That is my attitude.

To most, a desire to consume did not greatly challenge the practice of going through with repair, as they felt consuming new devices gave them little pleasure or status.

3.5 Caring for and hanging on to devices

Sometimes participant's motivation to attend Restart Parties was linked to a desire to repair specific items. This could equally have been a motivation to repair *commercially*. The Restart Party was however the desired option, as it was also beneficial in combination with other factors such as time and money. Occasionally motivation was fuelled due to a strong relationship with the item. A relationship between the owner and the item, and their shared geographical and social history can be a factor in this context, strengthening an 'ethic of care' (Wattson 2008). Tom commented how he felt responsible for his recording machine since he had inherited it from his Mother-In-Law. How responsible participants felt for items varied to a great degree, both depending on the person and the item. Sita was clearly attached to many of her items. She had names for her car, her bike and her phone, calling them all he or she. She expressed a sense of responsibility in the same way as Tom when describing her hedge cutter: 'I broke it, so I thought I better repair it. It is mine'. Participant's feelings towards their items changed with their historical relationship with the item. Community repair could in this respect be a unique opportunity to repair devices - like an old recording machine - that few, if any commercial repair shops would repair.

Sennett points out that by altering, marking or identifying with items we may become 'aroused consciously' by the materials, becoming more aware of them (Sennett 2008, 144). This is in many ways also the underlying logic of Restart. By engaging hands-on with their electronics, people might become more consciously aware of them, and thus feel more attached, responsible and thus inclined to take care of their devices. Feeling reluctance to defining an item's 'end-of-life' does not however imply they would

automatically consume less (Lindley and Barrett 2003 Find reference from defra report, Brook Lyndhurst 2011). Participants at Restart often stated they would still keep the fixed (if they had been forced to buy new one in the mean time) or unfixed item because it was ‘too good’ to be thrown away.

Other times, participants would be motivated to repair a specific item because it enabled them to perform certain practices. The active decision to repair sprung out of a wish to continue performing these. Both repair and reuse behaviours have been found to be influenced by the ability to undertake specific practices (Tonglet, Phillips, and Bates 2004). In the forthcoming empirical account in chapter four, one of the participants - Monica, wanted to repair her old Roberts radio as the new ones on the market did not have the features she wished for in a radio. She wanted to repair the old radio as it allowed her to record music with a SSD card. This highlights that what kind of practices the item enabled were not necessarily tied to convenience, time and everyday practices. It could also enable more leisurely practices. Following this, Simon commented for example that he brought his lamp to repair because he wanted to learn about wiring.

3.6 Social reasons

Participants did not necessarily attend the Restart Parties to be social. Nonetheless, to many it was certainly an attribute, especially as they often found that they shared values and thoughts with many of the others, which reinforced that Restart represented a certain mind-set they already valued. ‘I felt almost at home because I felt, “Yay, these people think like I think!”’ Katharina exclaimed. The experience of meeting like-minded people was strongest among the people who felt that the practice of repair was something they identified with, the practice meeting their needs beyond a means-end calculation.

Several participants commented on how they felt different to most people in their recycling, non-wasteful or repairing habits. The open atmosphere and clear acceptance of these kinds of values were often mentioned as an important feature of the Restart Parties. ‘Is there a *community*?! I don’t think I’ve ever met anyone like me before’ Sita said. This reinforces my point of how community repair primarily appeals to people

who already have these valued anchored in their habitus. Having said that, participants were not necessarily attracted to the Restart Parties initially by the opportunity to meet a community of likeminded people. Most did not expect this to be part of the experience on beforehand. The pleasure of meeting a community of likeminded people was as such a greater motivation for returning to the Restart Parties. ‘It is sort of a feeling of a community, which I sadly lack partly (...) in London there isn’t much of a community and I think things like that it is a very nice thing’ said Emma.

The preference of spending time in communities is interesting with regards to what kind of lives most of my informants were leading. While all were working professionals, the majority were fairly free to decide on their own time either because they worked for themselves, or had for different reasons reduced work hours. To them, it was clear they preferred spending more time on initiatives like community repair, being active and fix themselves, than to work more, have more money and let someone else repair their items for them. Moreover, the Restart Parties became meaningful as they fitted into a philosophy for how they wanted to lead their lives – having the time to be active participants in their own life, spending time on initiatives that fulfilled them on many levels. In relation to the participant’s general disinterest in consuming new items, community repair also fitted nicely into their general interest in consuming experiences over things.

3.7 Learning and gaining competences

Attending the Restart Parties was often motivated by the opportunity to gain knowledge about repair and electronics. Many highlighted, as mentioned, not being wasteful as an important value, and enjoyed doing things themselves to reach this goal. Still, it was not common that DIY repair of *electronics* had been part of their strategies previously to reach this goal. In this respect the practice was often a new way of thinking and learning about longevity, environmental protection and reduction in waste. ‘Knowledge is power’ stated one of participants. Others wished to be more practical for the sake of it being fun and exciting as well as enabling them to be more self-reliant. Simon commented: ‘I would like to be more practical, which is part of the reason why I have been going to the Restart Parties. To learn some of those skills, like fixing things myself’.

Participants could in this sense be placed on a continuum between being Restarters and complete novices. I will return to this point, but for now it is important to note as it means participants had quite different starting points for wanting to learn and/or be practical. While participants may have been disposed to quickly take up on the idea of repair as a strategy to reduce waste, they were as such not necessarily disposed physically for actually repairing electronics and undertaking this practice themselves. Participants often communicated that they found it to be a difference between being practical in general and having experience with electronics. Sita had been crazy about DIY since her childhood. Tools had been her favourite presents when she had a birthday. Yet, fixing electronics never something she had done. Few of the participants had any experience with repairing electronics. DIY repair of electronics or community repair was as such not seen as a common or familiar practice, despite previous interests in DIY.

For Sita, attending the Restart Party became an opportunity for acquiring yet another set of skills, alongside her ability to lay floors, do upholstery or general crafting. It fitted as such into her habitus and general interest in practical DIY. Several of the participants who to some degree had an experience with DIY, saw it as an opportunity to learn, gain knowledge, and build a new or further develop skills. Why they saw this as important was again driven by different factors. While to some it was linked to a bigger agenda of becoming self-reliant, and not dependent on the economic system, others enjoyed the thought of being able to help friends and family, to save money and reduce waste.

To those with less practical or relevant experience, the idea of learning about repair became quite different: 'I am actually a bit apprehensive about acquiring new electronic things. It's just so complicated, so much you have to know' said Thomas. Participants who felt alienated to technology in the first place, perceived the idea of learning about repair of electronics as quite daunting. Often these participants enjoyed being exposed to the practice, but the unfamiliarity of electronics seemed to distance them so much they did not feel repair was something they could learn. To these participants the Restart Parties became more of 'help-centres'. Here they could be guided through the jungle of options in anything from recycling, how to use devices correctly to what products on the market are more repairable. To them, the

opportunity to be guided face-to-face, in a non-intimidating environment was a large part of what made Restart Parties an inviting concept.

To others again, the learning experience was not central at all to their motivation. The Restart Party was primarily a convenient place to get help in an easy and non-intimidating way. ‘I tend to be quite passive (while repairing), cause I guess if it was up to me I just want someone to sort the problem out (...) I just want someone to take the pain away from me’, Thomas said honestly. To him coming to these events seemed both comfortable and convenient, offering an opportunity to let steam out, resolve his confusion or find a way out of a troubled situation. He did not wish for any additional ‘learning benefit’.

The feeling of alienation towards devices, and fear of opening them, was not only present in participants who did not feel practical in the first place. Both Gregory, who viewed himself as fairly practical, and Katharina who after all had worked as an operating Veterinarian a whole career, felt estranged because of their general unfamiliarity with the technology. Motivations to learn occurred thus on many levels: from wishing to learn a new skill to just wanting to become more empowered in their relation to technology, to not being interested in learning at all and just looking for help to get something fixed.

3.8 Economic reasons

Money and personal economy played an important role in most of the participant’s rational for visiting the Restart Parties. ‘Do I really want to pay another hundred pounds when I can have it repaired?’ Said Sita rhetorically, talking about her hedge cutter. Many had looked into commercial repair, or other types of maintenance services, but had either found them very expensive, that their device could not be repaired there, or that the service required them to send the device away, often without knowing if the outcome would be that it would get fixed, or how expensive repairing it would be. After asking Thomas what made him decide to go to the Restart Party, he replied bluntly: ‘Eh, it was free. Otherwise, you know, I was gonna have to pay someone’.

While most would emphasize other positive attributes as also being important, the financial gain was repeatedly stated as a tipping factor. If the practice had not been economically beneficial, several of my informants were not sure if they would have gone through with the practice of community repair: ‘For the moment the main reason I repair is cost. The fact that it also is environmentally positive is a bonus’ said Anahita. In some of the poorer areas, the Restart Party was the participant’s only option in order to continue having devices like a computer, if it broke, seeing buying a new one was too expensive. Emma had come with her friend Leo and his laptop, for this reason. The laptop was inherited in the first place, and as he would not be able to afford a new laptop when broke, they had gone to the Restart Party to see if it could be repaired – which it had been.

Despite the participants emphasize on economic reasons, it was clear the ‘bonuses’ also were important. Sita, replying to my question asking if she would go again, said: ‘Yes definitely, I mean you can save so much money. Although, it is not just about the money, it is about a lot of things. Like, it is about taking care of your own things. I get annoyed when something breaks down, but I also I care and love for my things in which it is important to be repairing’. Emma commented: ‘I am not rich, so it fits my budget, but actually a massive part of it is I hate the idea of all the horrible parts, metals and things, going to landfill. Just imagine it – all that nastiness going back to the soil. That is a huge reason.’

3.9 Time and convenience

While many participants would claim that for other people time would most likely be a barrier, they did not seem to see this as an obstacle to themselves in the same way. Why people valued their time differently and did not find it demotivating to give it up for community repair is a question that is too complex for this thesis to answer now. Considering time as money, the degree to which an object was desirable to repair could be affected by the value of the item. Anahita had called up the producer of her camera, who had told her the repair could come anywhere between 10-100 pounds – depending on the fault. They could not settle this before they had seen and identified the camera. ‘That is a lot of money’ said Anahita. The time spent at the Restart Party had clearly made the visit worth it.

The decision to attend a Restart Party could also spring out of a growing pressure to find a solution - the item demanding interaction with and not only through itself (Verbeek 2004). To say it as Verbeek does: 'Only when it starts up again and everything works without a hitch is the world that was destroyed again restored' (2004, 80). While Tom needed his recorder for his court work, Sita had a fast growing hedge she needed to trim. Anahita had a dab-machine that was not hers, but which was due to be handed back. Time can in this sense be seen as a pushing rather than a hindering factor for strengthening the desire to have something repaired.

To many, attending community repair was as such the easiest solution. It meant they did not have to look any further to find a solution to their problem. While it was time consuming, participants knew that if they just turned up they would get help, within the limits of what was possible. Katharina declared: 'If something is broken and they (Restarters) want to give the time - to me it is just a no-brainer'. Community repair was in this respect regarded as a convenient or easy solution in many ways. Nick reflected on how he saw this equation: 'Yeah it takes a long time to repair, so I guess most people would say their time is worth more than the thing they are trying to repair, but I guess since I am so used to repairing, I don't see the pain that most people do'. Thomas reflected how he actually had a pre-paid insurance with Dixon's repair service, Know How, which could help him get his computer repaired. This however would demand that he sent his computer away, transferring all his job content to a different computer first. Feeling quite alienated towards the computer in the first place, this process seemed so daunting that to go to the Restart Party became a very easy and convenient option in comparison. The motivation to repair was, as such, affected by the item's role in the life of the owner, and to what degree giving up time weighed less than throwing away or spending money on a new item.

A range of different considerations affected participant's process of deciding what to do with the broken devices, and whether they found community repair to be an easy and convenient option. Of my other informants, the majority worked freelance, had their own company or were retired. As such they had (perhaps also less money), but also more time to undertake more time consuming practices such as community repair. While both Nick and Katharina had tight schedules with full time jobs, none of them had for example children and were fairly flexible in this regard. They did however

have a computer and a phone they had an urge to repair – especially since they were passionate about not wanting to throw it away.

3.10 Summary

There were a variety of people who came to the Restart Parties in terms of age, socio-economic background, career path and ethnicity. When looking in-depth into to why participants felt motivated to repair, it is however impossible to not also discuss to what extent they may be predisposed for taking up this practice. Many carried strong dispositions for the concept of repair as a strategy to be less wasteful. This was especially the case as many had deep ties to the Global South, where values of taking care of your things and not being wasteful still stand strong. Few of the participants were big consumers either. Many felt motivated by the opportunity to gain knowledge, to be practical and/or become more confident with technology - leading to empowerment and a feeling of being more self-reliant. To others the Restart Parties were just a solution to a problem. Few of the participants felt disposed physically for taking up the practice of electronic repair. While they might be practical, they saw electronic repair as distinctively different practice to general DIY practices. The common tipping point for choosing community repair was nonetheless to save money. To many, community repair was a convenient way of not being wasteful, getting help and not paying large sums for commercial repair.

4 To repair in communities - the role of materiality, competences, cognitive processes and social situated learning

Although repair may be perceived as an out-dated and old practice, electronics repair has recently begun to increase in popularity in some London communities. Shove, Pantzar and Watson argue that ‘practices emerge, persist and disappear as links between their defining elements are made and broken’ (2012, 21). The following chapter will locate and examine the defining elements of the social practice of community repair, focusing in on what shapes and thus characterises the practice. This is an important step in order to discuss to what extent this form of repair is a new practice. The following chapter will attempt to unveil how agency is distributed in the practice of community repair. Firstly, by investigating the role of competences, as located within Restarters, participants and the community of practice. Secondly, by inspecting the role of scripts and material knowledge. Conclusively, it will discuss the role of social situated learning and its ability to enable participants to overcome their fears and dive into the processes of repair.

4.1 Empirical account - Restart party at the ReMakery in Brixton

A different Restart Party I attended was located at the ReMakery, a transformed garage in an apartment building in Brixton. It was a warm, rainy Sunday in mid August and the streets were empty as I walked there. The ReMakery, however, was buzzing as Restarters and participants had already started to put their hands on broken gadgets. A woman in her late forties, Monica, and a Restarter, Shane, at the same age, was sitting around one of the tables. Monica had brought in a Roberts radio. She had actually decided to buy a new one when it broke down, but finding that the new versions did not have the same functions as her old one (not being able to record music onto a SSD card), she did not want a new one. While this is not a very usual development, it

demonstrates that the role that the item plays in the owner's life has a say in shaping the practice.

Monica had heard about Restart through twitter and had decided to try it out. Perhaps it would mean she could keep the old radio that she preferred. Shane claimed that Roberts is usually quite a good brand and the company is meant to make long-lasting products. He asked if she had tried to have the producer repair it. This thought had not even crossed Monica's mind, and she responded in disbelief: 'Do you think they would have done that?'. Looking at their website a little later we found Roberts actually did have a free number that could be called in the case of faults. It even listed user guides, guides for trouble-shooting and provided information on how costumers could have their radio repaired. This was quite surprising to all of us.

Monica tried to turn on the radio. Funnily enough the device actually worked. Although this might be perceived as odd, the Restarters around did not seem to be so surprised. According to Janet this is something that actually does happen on a regular basis.

Monica explained that she previously had thought it was a dodgy connection. Shane asked her why she thought so, and she explained how the radio used to turn on from time to time until it stopped working entirely. It had at this moment been out of use for several months. Shane suggested using an air blower and a brush to clean around the ON button. He suggested it might be something stopping the button from working properly. Although the radio now worked he suggested they could take it apart to have a look inside and see if there was something that could be fastened or cleaned to prevent it from stopping to work again. Being a Roberts the radio is fairly easy to take apart, he explained, reinforcing that the radio is actually made to be repaired. 'Have you ever opened anything up before?' he asked. Monica looked sceptical. 'If Roberts can actually fix it, maybe that would be better?' she asked. 'Well, we definitely won't break anything', Andy said. He had a lot of experience with opening radios, he reassured. 'It is the fear-factor,' Monica explained.

Discussing the matter Shane assured Monica it would be totally fine to open the radio, and pointed to the arrows that even marked what screws to open. They agreed to have a look inside, and Shane opened up the radio. Monica and I stood looking inside as the

radio was opened up. There was a small part loose, but apart from that nothing seems to be wrong. The ON button was going straight onto the circuit board. Shane suggested that a different option could be to take off the two following chords and re-solder them on to make sure they were working properly. Again Monica was hesitant and repeated explaining: 'It is the fear isn't it?' They concluded that since the radio was actually working they would just give it a good clean, and Monica looked more comfortable with this.

I asked Monica if she had any experience with repair. She did not, but mentioned that before, when computers were made so they actually were supposed to be opened, to for example upgrade the memory, she would do that. This she had learnt through her work as a librarian. 'That was just something we had to do' she added and shrugged. It seemed, she had found that much less scary.

The radio still worked after it had been re-assembled and Monica looked relieved as she walked out into the Sunday rain.

4.2 The importance of competences

Competences affect the practices of community repair in various ways. Though the thesis is focused on the participants, in order to investigate how community repair comes across as a new practice, it is important to note that both groups (participants and Restarters) are important in order to really grasp what shapes the social practice. Practices are always shared (Shove, Pantzar, and Watson 2012) and community repair, especially, is inherently a collaborative project. The practice is the result of a joint effort. It therefore felt crucial to also include the role of the Restarters and to examine to some extent what competences were required from them. During my fieldwork it quickly became clear that there was no straight line dividing the two groups. Though many of the participants had no experience or knowledge with repair, there were also those who did, but who out of lack of commitment or because they felt they needed to learn more, did not see themselves as being fit the title as 'Restarter'. The participants could in this respect be positioned along a spectrum, according to how much knowledge and experience they had with repair. They ranged between 'I am so thick when it comes to electronics' to 'I've been tinkered with computers since I was a kid'.

While the process of repair is a joint effort, it varied how much the participants would contribute in the process, as seen in the accounts above. This I will return to. The practice of community repair will however always be shared and shaped by both Restarters and participants.

The Restarters had a set of competences that often were crucial for the repairs to succeed. Yet, I argue that to some extent the mastery lay not in each individual Restarter. It was located in the community of practices (Lave 1991). A community of practices can be described as ‘groups of people informally bound together by shared expertise and passion for a joint enterprise’ (Wenger and Snyder 2000). To prepare for a variety of devices and faults, the most crucial issue was to have a quiver of skills available within the community. There were no limits to what kind of small electric devices items people could bring. Neither what type of faults that would be attended too (within the limits of the devices being possible to open). The criteria’s for items to be regarded as ‘small’ was organically regulated by people’s ability to bring them along to the event. The Restarters and the hosts, who assigned the repairs to different tables as they arrived, would often ‘map’ out which skill sets were available within the group of Restarters. There is arguably a significant difference between fixing a motherboard in a computer and wiring up a lamp. Having said that, knowledge would flow among the Restarters, and was in this respect not contained within each person. They would discuss the different repairs and share knowledge, talking about previous repairs they had done both before and after events. Restart also hosted skill-share events where they often asked specific Restarters to share their knowledge on a topic. This way of sharing competences aligns with Orr’s classic account about the printer-repairers who drew their competences from the oral and communal pool of knowledge rather than manuals and other written instruction (1990). In this respect Restart became a community of practices where the mastery lay in the community and not in each individual Restarter.

To accomplish the repairs demanded nevertheless a certain set of competences in addition to a great deal of creative problem solving. Competences are located in a person’s skills, know-how, knowledge or technique. Some skills and techniques begin as bodily practices, and these were to a greater extent held by specific Restarters- as opposed to the wider community of practices (Sennett 2012). Ability to work with

small parts, as often is the case with electronics, was for example often a great advantage. Sophie demonstrated this when she was able to work quickly, assembling very small parts into her phones; fixing three phones in the time Mark fixed one. Skills and techniques can in this respect be seen as important from a time perspective. If the goal on the other hand is to accomplish the repair, rather than how fast you do it - which was often rather the case at Restart - I would argue as Sennett does that repairing is essentially more of a cultural issue than one of a 'mindless procedure' (2008). To accomplish the three types of repairs listed by Sennett, the most important skill after all is the initial judgment: 'that what's broken can indeed be fixed' (Sennett 2012, 212).

Sennett further argues that technical understanding 'develops through the power of imagination' (2008, 10). This was of course applicable to a different degree whether the challenge was to follow a detailed repair guide for iPhones, presented on iFixit.com, or to make a projector from the 90's work again, that no-one had heard about before. Yet, all types of repair demand a level of creativity and improvised problem solving throughout the process (Orr 1990, Rosner and Ames 2014). That was even evident in the account about the Fairphone where it was Sophie's intuitive reaction that solved the situation. *She* was the one who got the repair process back on track during a critical moment, not the instructions on iFixit.com. As one of the Restarters commented, to him, repair was like problem solving. Attending Restart was fun because he always could get totally new, unknown challenges. It was an advantage to have a quiver of competences available, but despite the Restarters' know-how, competences and experiences with repair, there was in the end not a set of easy definable competences that were required to succeed the repairs. A quiver of skills, found in the community of practices, rather in each individual 'master', provided nevertheless an even wider basis for communal, creative problem solving.

This skill of creative problem solving, and attitude that 'what is broken can indeed be fixed' was key to enabling Restarters and participants to go through with repairs. This was demonstrated very clearly in the account about the Roberts Radio. Looking away from the fact that the Roberts Radio in the empirical account actually worked at the Restart Party, it was Monica's attitude, that to repair was considered 'risky', which became the greatest barrier to deepen the repair and give the radio a bit of maintenance

work. Pointing this out is not to devalue technique developed in the partnership between head and hand, but to highlight that in the process of community repair, motivation is key. The interplay between competences, skills, creativity and attitude is a complex matter, but for now I follow Sennett and argue that, in the long run, attitude and confident imagination is more important than talent (2008).

Persistence and endurance are two key competences that need to be mentioned specifically. It is a competence to manage to stay with frustrating work and sustain concentration (Sennett 2008). Anahita explained how she had repaired her camera over the course of two Restart Parties. During the first Restart Party they had identified what was wrong and which spare parts she needed. Having sourced the correct parts, she decided to come back a second time to complete the repair:

After visiting Restart the first time I probably would have opened it myself if I had had that tools. But then again, I probably would have given up. Philip had so much persistence. He just tried over and over again, and in the end it worked!

The process of repair is seldom straightforward. Even if you have the tools or competences for how to do it, it can be an improvised act that demands trying out different solutions. This can be time consuming. As long as Restarters had persistence, there was no external time pressure that put limit to how much time could be spent on a repair. It was of course an advantage if the Restarters had time for more than just one or two repairs, but the main goal was to be finished within three hours. The lack of time pressure enabled Restarters to repair items that never would have been cost-efficient to repair in a commercial repair setting. The process could however be arduous and require a great deal of persistence and endurance.

As a 'library' of repair manuals iFixit.com and YouTube.org were valuable resources - a pool of knowledge Restarters could tap into at any time. The ability to search for manuals online, and watch how devices are repaired visually has made repair manuals a lot more user friendly since Orr did his fieldwork in 1990. The ability to record and film repairs has given manuals a more important role in processes of repairing, as they in a way have become a part of the oral accounts. Arie Rip's words are useful to describe iFixit.com: 'knowledge products are delivered into a knowledge reservoir, carried by what one might call an epistemic community, and knowledge users pick up

their own new combinations from the reservoir' (Rip 1998). This adds a whole new dimension to the practice, especially in comparison to repair processes that were undertaken before the Internet existed. Restarters would not necessarily rely on repair manuals, but they were arguably a valuable resource. Many repair acts would start with a search for what knowledge existed on the Internet. Instead of starting from scratch to figure out how to resolve common faults within computers or phones, Restarters could quickly search and tap into this knowledge pool, seeing if someone had solved the repair challenge before them. The online knowledge pool enabled the mastery of the community to melt with an online, global domain. For these reasons the knowledge pool was an important resource for the community of repair practices. Frequently, the main task was not even to repair the object, but to open it in the first place. Guides were often helpful to explain how a device should be opened, pointing out all the screws, the tricks and dangers along the journey. Modern devices are largely closed off for repair (Verbeek 2004). This global, open source, knowledge sharing is as such one of the repair movement's strategies to make technology accessible and the inside of devices more egalitarian (Rosner 2014).

That this knowledge is available to anyone everywhere had enabled participants to often 'start' the repair at home, searching the Internet for reasons why their device had broken down, or instructions on how to fix it. This was also the case with Mark, the owner of the Fairphone in the empirical account. Yet, as the empirical account demonstrated and for which the following discussion will highlight, an online repair community is great for spreading knowledge, but it is not necessarily enough to actually make people start taking up the practice - especially if they are novices and new to the practice. Many of the participants who had managed to locate a guide for repairing their device still preferred to come to the Restart Party to go through with the procedure.

Few participants saw themselves as competent enough to undertake electronic repairs. It was largely a new practice to them. While discussed briefly before, this is an issue I would like to return to. The participants were learning novices almost regardless of how competent they were with more general practical work. Quite a few had experience and were in general, competent practically. Yet, seldom did this seem to give them a great advantage when it came to repairing electronics. Monica in the

account above had opened and repaired computers before without feeling that opening a radio was fairly intimidating. Sita, as mentioned in chapter two, had always been interested in DIY, but had never repaired electronics. She felt it required a distinctly different skill-set. Katharina who was a Veterinarian, working practically and operating on a daily basis, did not feel her skill-set enabled her to repair more confidently. Nick, who had tinkered all his life, still felt that coming to the Restart Party is what gave him the necessary support to go through with the repair. This suggests that while DIY electrical repair conceptually may be linked to other types of DIY practices, people perceive it as quite a different venture.

That repairing electronics is a new type of practice can partly be linked to the lack of historical tradition for repairing electronics. This becomes a logical outcome when looking at the development of technology and individual ownership of technological devices. Compared to a long history of people who has owned clothes and learned how to mend these, personal ownership of technological devices - that could easily be fixed or built (such as the old school stationary computers) - has not had an equally sufficient time to build a strong repair tradition of electronics. In the UK the 'closest' DIY culture, demanding a similar skill-sets, was the strong, but relatively short-lived DIY culture for repairing automobiles. This tradition lasted about 80 years (Graham and Thrift 2007). The amount of people who grew up when it was common to tinker with old-school computers is fairly marginal. Their parents most likely grew up before the age of computers. People who grow up today are mostly surrounded by electronics that are designed to not be opened or repaired by the owner. Nick had tinkered during his childhood through trial and error. His dad had also been very practical. Still, they had never 'met' in their interest for practical work. 'My dad was an engineer as well, very handy – tiled, gravelled, and did simple plumbing, but I don't do any of that'. There was too little overlap in the type of practical work they were interested in that it became natural to share the interest.

Yet, despite the lack of historical tradition, why was electronic repair seen as such a 'scary' practice? These perceptions are important to investigate as they inevitably affect the way we see the practice of community repair of electronics as well. Before I return to this question I will go on to explore the material dimension of repair.

4.3 Materiality

The choice to repair and the practice of repairing will inevitably be affected by what kind of device it is that has broken down. Schatzki comments that ‘practices are intrinsically connected to and interwoven with objects’ (2002, 106). How the practice of community repair would pan out, was tightly interlinked with what kind of item was being repaired. It is highly relevant to explore how the agency in materiality and scripts shapes and structures repairs. Taking on the challenge of repairing a kettle versus a computer will inevitably be affected by different factors. They require different competences, spare parts and tools. They have different economic, social and perhaps personal value.

Design, age of product and type of fault would similarly affect the process in diverse ways. There is a large difference between repairing an iPhone versus a kettle or a lamp, and I could easily have chosen to only look at the practice attached to either of these items. Since community repair is a practice that ties these separate items into a shared agenda of wanting to take care of items, maintain and prolong their lives it makes sense not to separate them.

The co-location of different types of repair is a distinct feature of community repair. Proximity of different types of repairs meant they affected each other, enabling seemingly different practices to be related to one another. Nick commented on how the Restart community had broadened his concept of what was worth repairing: ‘An interesting thing about the Restart Party was there were things like a kettle, which is the not necessary the kind of thing I would have tried fixing myself. But seeing that people do it...’. Hosting different practices of repair in the same location enabled a ‘cross-fertilisation’ between different repairs as they were undertaken in close proximity to each other (Shove, Pantzar, and Watson 2012). Their co-location tied them to similar competences, meanings and symbols despite the inherent difference between fixing a hedge cutter and an iPhone.

The practice of repairing electronics is affected by the degree to which an item is designed for repair. In the same way as the practice of repair varies depending on different items; the practice also depends on differences in design. How much the items that came into the Restart Parties were scripted for repair varied hugely. When I

visited the Restart Party in Romford, East in London, this became particularly clear. A young woman came to get help to fix a baby caller that had broken. It had only been in use for one and a half years. After her came an elderly man from Iran who asked for help with a large radio. He had owned the radio for over 40 years, and had brought it with him when his family escaped the Iranian regime many years ago. After following the two repairs for a couple of hours, the result was one happy and one disappointed owner. The man with the radio went home with a well functioning radio. The Restarter commented that it had been a fairly easy repair. The woman, in contrast, had to go home with an un-fixed, broken baby caller. It was probably only a fuse that was gone, but the item was designed so that a plastic shield had to be broken in order to change it. This made it impossible to repair in an easy manner. Such barriers, hindering people to repair, can also be found between the same types of items - like different phones. The empirical account from Kentish town did not describe how Sophie opened up her iPhone, but the degree to which the Fairphone versus the iPhone was designed for repair was inevitably shaping the practice.

My purpose is not to give a full analysis of the different ways various designs script items for repair. Yet, another issue worth pointing out is how the practice is affected by the extent to which the item is scripted to be compatible with standard tools. Or if the items demand special tools to even just be opened. This is partly why standard tools are on the list for a fairer and more open repair culture, by among others, iFixit.com and The Repair café (as mentioned in chapter two). It is fair to say that this puts an ethical responsibility on designers, to decrease the extent to which an item is designed for obsolescence (Verbeek 2006).

The tradition of designing devices as 'black boxes' has also had its say in instilling an understanding that the infrastructure is 'off limit' for the owner, so to speak. To sociologists of science and technology black boxes are '(...) settled items whose users and colleagues (human and non-human) act in ways that are unchallenging to the technology' (Hinchcliffe 1996, 665). This renders the infrastructure both physically and metaphorically invisible (Leigh Star 1999). As Katharina commented: 'I never grew up with computers, so it has never been this playful learning. In your job you are just supposed to know it, but for me it is just this black box'. Wilhite emphasizes that there is a difference between technological determinism and material agency (Wilhite

2013b). It is next to impossible to define exactly the border between an intentional design - scripting the device to keep the user out, hindering it to be repaired, forwarding planned obsolescence – and what is just material knowledge perceived by the owner, making them take a step back, giving the device agency so it is not repaired.

A border can be a hard, concrete, shell that covers the item. It can also be a border within the software of computers. All devices guard this border through design to some extent. This border is arguably part of the device's material knowledge, whether it has been created intentionally or unintentionally. The Roberts Radio had arrows pointing to the screws that held it together. These were possibly made to comfort the repairer, without the effect necessarily being so significant. When Katharina tried to get her computer up to speed again, making changes to the software required her to look beyond the 'whimps' and '☹', which her computer was repeatedly communicating to stop her in the process.

The interplay between material agency, competences and cognitive processes is a complex matter. Infrastructures in cities often only become visible when they first break down (Leigh Star 1999). For small devices that seldom are designed to be opened (Verbeek 2004), and rather are intended to be thrown away upon breakdown, we might never be presented with their infrastructures unless we purposely decide to have a look at them. Unveiling the infrastructure of a device is usually to go against what the device encourages you to do. Making a device a black box can most certainly be a script and design decision, but as the 'black boxing' has implications on several levels I will regard it as material knowledge; investigating how devices have agency beyond their intentional script, and what implications this has for participants' abilities to challenge the distribution agency.

'Agency can be considered the socio-culturally mediated capacity to act, while praxis (or practice) can be considered the action itself' (Ahearn 2001, 118). In this respect it is interesting to comment on Fairphone as a disruptive design, which both through design and its cultural communications invites people to take part and take the agency to fix it and care for it. Rosner argues that to design for how materials affect our interactions, means 'attending to the material properties of digital content: the ways

digital elements mutate and degrade over time, how they get encoded and stored as well as how people fine-tune their configurations' (Rosner 2012). The Fairphone in the empirical account was a Fairphone 1 and fairly repairable. Fairphone 2, which came on to the market in January 2016, was completely repairable. By comparison with the Fairphone 1 above, which required 26 steps for replacing a screen, in the new one, the screen can just be slid off if broken. Fairphone had a poster at their launch event October 2015 saying 'Fairphone 2 lasts longer than the average relationship'. In the reference to love relationships they implicitly communicate the need for the owner to also care and work if the relationship (with the phone) is to last. Having seen how dramatic Mark (the owner of the Fairphone in the empirical account in chapter two) perceived the process of repair – feeling that it was like surviving Titanic - we may question whether he would have repaired his phone and given it the same kind of attention if it had not been scripted for repair and 'requested' to be cared for. While this type of repair can also be seen as a symbolic act, a fashionable practice, it is still a question worth asking. Nevertheless, scripts for repair will by no doubt affect carriers of practices differently, as their identities and experiences vary.

4.4 Fear and cognitive processes

Agency is distributed among bodies – physical and cognitive dispositions, materiality and the social context (Wilhite 2013, 69). Once it has been identified how agency is distributed among the material, competences and meanings, change can occur when brought into a setting of social learning, where practitioners become introduced and engaged in new practices (Sahakian and Wilhite 2014). It is not always easy to determine how the agency is distributed. Competences situated in the community of practices are important to the repair processes. Scripts and material knowledge also have a strong agency affecting the experience of repairing. I will continue by examining this interplay between the competences, material knowledge and participant's cognitive processes in relation to social situated learning.

Participatory and social learning may be seen as an altogether different experience to that of an individual, isolated learning experience (Lave and Wenger, 1991). As a theoretical perspective, social situated learning states that 'learning, thinking, and knowing are relations among people engaged in activity in, with, and arising from the

socially and culturally structured world' (italics as in quote, Lave 1991, 67). The role of social situated learning is key to understanding how participants came to learn and take up the process of repair.

That most devices are designed as black boxes, and that repair demands a process of 'un-black boxing' is central to this discussion. It was apparent that the Restart Party participants often experienced transgressing the black box as a quite intimidating, and in a sense a rebellious act. That devices are made as black boxes hinders participants, or people in general, to imagine what they can expect on the inside of the device. Coming back to Sennett's argument that technical expertise develops through the power of imagination; a feeling of alienation was created with the inability to imagine what could be expected of the repair process. Not knowing what the repair would demand contributed to an overall feeling of not being competent enough to undertake repairs - despite general experience with doing practical work. The feeling that the infrastructure was 'off limit' was strengthened by the inability to see, touch or relate to the inside. It rendered the inside impossible to classify as dangerous or non-dangerous. As Monica commented 'it is the fear-factor isn't it?' Without implying that I know exactly how she felt, having seen many participants with the same reactions, I argue this sentiment was at least partly based on the feeling that the inside of that device was literally 'none of her business'.

Participants often found it empowering to physically take ownership and claim back their objects, although it challenged them both physically and cognitively. 'Marking an object can be a political act' - in the fundamental way where one establishes one's presence (Sennett 2008, 144). While looking at the political dimension was not a focus of my study, I noticed that many of the participants saw the Restart Project largely as a political project. Perhaps due to the combination of working to transgress the guarded border of objects and being exposed to the larger agenda that The Restart Project works to convey. The act of repair was often seen as a statement, as a political act that went against the way producers wanted the item to be used. From a 'broken world perspective' repair and maintenance is part of everyday measures to keep the world going, but to allow people to attend to their own lives and repair themselves is a question of politics (Graham and Thrift 2007). Breaking through the black boxes is to make the inside of a device more egalitarian (Rosner and Turner 2014). By repairing,

participants would transgress the border and mark their presence on the devices, physically establishing resistance to the system of a throwaway society, critiquing not only a consumer society, but also in a way capitalism.

The effect of the material agency on participants differed. Emma commented that while she found computers relatively easy to repair, the thought of repairing a vacuum cleaner or kettle, for example, was terrifying. To others, this was the opposite as they saw circuit boards and smaller devices as easier to break. Emma's reflections reinforce that the practice of repair may be analysed as remarkably different between items. It also demonstrates that repair of electronics may be perceived as 'dangerous' because the participants lack imagination and understanding for what it actually entails. They may base their fear on little actual knowledge. It springs rather out of assumptions and feelings. Lack of knowledge combined with an inability to see what hides behind black shell can as such be seen as a fear creator, creating a feeling of alienation to a product.

Becoming a good craftsman involves working with the experience of ambiguity and resistance (Sennett 2008). Sennett claims that developing crafted skills - diverging from cooking to the anatomist working with a scalpel - are all arduous processes. However, they are not mysterious (2008). Though this might be true, it seemed to be the process of demystifying Pandora's box - the respect for the firm shell covering the electrical devices - that was most crucial to introducing novices to the practice at Restart Parties. Anahita explained how she had gained the confidence to repair as a young girl, reiterating how her Dad had told to her: 'Well you are not going to break anything, are you?' His words had led her to feel less threatened or weak-hearted in front of devices. A big part of learning how to repair was in this respect to realise that the likelihood of breaking something was small - especially if the device was already broken. Becoming exposed to the device's inside, participants became familiar with what was 'on the other side'. This process heightened their ability to imagine what repairing entailed and recognise that to repair was neither very dangerous, nor so scary.

Having said this, even experienced participants felt the process of transgressing the shell was an arduous one that was made easier with the support of a community. To

repair an item can be seen as a process of negotiating the border between the material and the individual agency. Even being familiar with the content on the inside, this process of negotiation was often perceived as challenging. Nick had come to the Restart Party with his phone. He had known beforehand that it was possible to open it. Yet, on seeing it was so difficult to get the cover off, he doubted he would have dared to go through with the act unless he had been at the Restart Party. He described the process:

I found getting the case off (the phone) incredibly frustrating, cause I wasn't so sure what I was doing, and then I'm always nervous I might break the phone. Cause the phone itself works, I can make calls and send texts and all, I just couldn't do any browsing on it. And that is something I use a lot. So I was nervous of breaking it. These things are fairly fragile.

While Nick perceived the phone to be fragile (which probably was true), in cases like this, it is difficult to determine whether it is agency in the design not facilitating repair, or if the hesitation is due to a lack of agency within the repairer. While an item may be *possible* to repair, it might not be *easy* to repair it. This often adds to a feeling of insecurity. The process of transgressing the border can in this respect add to a novice's feelings of doubt. Is the repair possible? Or is it sensible to go ahead?

As argued before, motivation may be more important to undertake repairs than talent and skills. Yet, while this might be the case for the lonely craftsman, I would argue that in order to even consider repair, confidence is crucial. Technical understanding is as such not only about having the imagination to think outside the box. It is also about having the confidence to do so. In most cases, undertaking repairs challenges the script of the item. To transgress its implied boundary could, as mentioned before, get extremely uncomfortable. Nick's comment seconds this: 'I was super nervous taking off the case of my phone, and if I didn't know it was possible I probably would have given up'. Most participants were highly motivated to repair their device. Some had experience from other repair practices, but were uncertain if it would be possible (and not harmful to the device). Consequently, they often lacked the confidence to get through with repairing. Learning how to repair was therefore not only tied to understanding how to do it, but also about gaining knowledge that such a manoeuvre was possible. George declared:

In the past I used to repair motorbikes and stuff, just because you had to, and I am reasonably practical about stuff. But you know I don't like the fidly, bidly stuff, because one becomes acutely aware that one don't know what one is doing suddenly. So I stop at that point.

He had a set of skills and competences and he wanted to repair something (as he found himself at the Restart Party), but it was his confidence, his insecurity that gave way. Mark's comment in the empirical account in chapter two, that he felt like he was hallucinating, seconds this point. While his choice of words was obviously on the more dramatic side, the way the process of repair would scare and make participants uncomfortable was evident. Restarters were described as brave, confident, fearless and patient – all terms that implied that a strong mind was more important than concrete skills. Through communal support and demonstration that opening up black boxes is neither scary, dangerous or all that complicated Restart gave participants the confidence to take up the practice of repair in this setting.

4.5 The role of social situated learning

Regardless of where participants were on the continuum to becoming a Restarter, I would argue that communal support was key to enable all of them to go through with the repair. They all felt vulnerable to some extent. Even Nick who was experienced with tinkering with his computers, came to this conclusion when asked how he found repairing alone, compared to repairing with others:

I like it in the sense you get a lot of moral support, like it is good to just discuss. Being able to say, "what do you think?" Like when I couldn't open up (the phone), the guy Rob was like: "If it was me I would just dive in, fully commit and give it a bit of wellie." And I did, and it worked!

His comment demonstrates how there is a tension in the process of repair, which can create insecurities even among the most experienced repairer. This was also clear in the account from Kentish Town, where even Alex, a most skilled and experienced Restarter felt uneasy about the un-expected challenges arising in the process of repairing the Fairphone. Even a 28-step detailed guide on how to repair could not eliminate all dangers for anyone. Stern points out how a surrounding context can override cognitive factors (Stern 2000). When looking at the way the community supported novices in repairing, the same may be said in terms of overriding fears and

feelings of inadequacy. The context of community repair provided a safe setting where participants felt in secure hands, thus daring to take more risky decisions.

It was in this respect common that participants experienced a change in the way they viewed, experienced and felt in relation to the practice of repair. Knowledge, competences and meanings attached to practices are produced, and re-produced in the course of the activities (Lave 1991). Since the practice is socially constituted it evolves in a dialectical relation between the Restarters, the participants and the socially and culturally constructed world of Restart. The practice is generated in this relation. It is worth pointing out that how the practice was produced and re-produced depended also of course on the interest and concern, thought and action of the attendee. Like Katharina eloquently commented:

It is a little bit like going to the doctor. Some people want to know what is going on with them, and really into the smallest details, and some people just go to the doctor and say: “Just give me the bloody drugs and let's get on with it - I don't even want to know what's going on”.

Returning to the discussion - there were several features of the Restart Parties that facilitated this dialectic learning process. Learning in a community of practice can be seen as a wider experience than just tied to specific tasks (Becker 1972). This is one of the strengths of this type of learning (Lave 1991). Nina pointed out how seeing that a lot of people repairing made the practice seem less alien. Even through peripheral participation, like a one-time attendance or by just undertaking computer maintenance like Katharina did, which is not a ‘deep repair’, participants could get a broader idea of what electronic repair involved and the goals of the practice. They got exposed to repair as a practice beyond the specific repair they were involved in (Becker 1972).

The Restarters showed great empathy and understanding for insecurity and moments of doubt among participants. Sennett has examined Julia Child’s cooking instructions for how to bone a chicken, focusing on how Child aims to help the reader to confront challenges in coordinating hand and head. In doing so she focused not on the chicken, but rather on the hand. She described for example how cutting the chicken’s sinew is ‘like’ cutting a piece of string, but ‘not exactly like’ it. Sennett highlights this as showing sympathy with the reader. It acknowledges the emotional moment before a habit has been born, a moment in which the reader is vulnerable before having gained

the confidence to 'bone without hesitation'. Following this, Sennett stresses the importance of on-site, spoken words in guiding any practical work (Sennett 2008). He emphasises how much more efficient this is in comparison to written words as it enables the learner to ask for help whenever anything goes wrong. This was also the case at the Restart Parties.

This points also to the weakness of repair guides at iFixit and YouTube in their ability to enable novices to take up repair practices. There can be a great gap 'between instructive language and the body' (Sennett 2008), which is also what we saw in the repair of the Fairphone, where due to the incoherence of the text, Alex's reading and his actions led to an unexpected outcome. The body can both be behind and in front of instructions, hindering a perfect co-existence that challenges the process of repair to evolve in a successful manner. It was the dominating view among the participants that being in the same room was important, enabling a collaborative effort. George stressed this saying: 'Well, it is far better in a communal setting, cause there is always stuff that goes wrong. And it is great to have someone's nearby advice'. However, he also acknowledged the value in YouTube, which might be seen as somewhere in between a literal account, engaging the visual senses, and having someone available to ask:

A few things I found YouTube is quite handy for, when you are by yourself. -The most obscure thing, but there is always Bob from California who can tell you how to do it, which is a completely new thing. But it is amazing how precise things (these instructions) can be.

Considering what information is available on the Internet there might not seem like a big difference between the practice of community repair and repairing with the support of iFixit. Coming back to the importance of confidence, a key difference is however the human support and the immediate, tailored guidance that community repair can offer. At the Restart Party in Kentish town, knowledge from iFixit.com, Ugo's know-how and experiential knowledge as well as Sophie's skills and technique were inevitably important to enable the practice, the action. It was nevertheless the confidence to persist, strengthened through communal support that pushed the process to the very end.

The key strength of community repair can thus be seen as the cooperative model where social situated learning enables novices to go through with repair. It was the communal

support showing empathy with the participants, demystifying Pandora's box and relieving participants of the concern that something could be broken, that made repair less scary and dangerous. Social situated learning is what gave participants confidence. Like Nick commented:

I mean it does annoy me that modern phones are built in ways that deliberately make it difficult to repair (...) But I guess that is why Restart is good, cause it gives you the tools, knowledge and support to get over those barriers.

Most of the participants had never repaired electronics before. I argue that it is the social situated learning that strengthened and enabled them to enter the practice.

4.6 Outcomes and learning

Nevertheless, many of the participants claimed they had not learnt anything at the Restart Parties, referring to tangible, practical skills in the textbook sense of the word. The level of learning depended on how much Restarters would encourage participants to get hands-on, time availability and again on the level of interest and hands-on participation by the attendee. Learning was not always very explicit, and as such easy to detect. Teaching can be linked to gestures, body language and subtle ways of communication (Sennett 2013). At the Restart Parties it was rather calm, patient, and practical thoroughness that communicated attitudes, methods and competences, and that indicated that the repair process was safe and on a promising path.

It is also important to keep a sober view as to what learning is, and what is realistic learning in this setting. The rhythm of building up skill, such as playing sports or performing music, might require up to 10,000 hours (Sennett 2012). Such training is certainly not the scope of the Restart Parties. Participants would, however, often mention some small bits and pieces of repair they would do at home, like strengthening the lead of a kettle, or take the final steps to complete a repair. They could explain their understanding of the wider Restart agenda with ease, despite having been to the Restart Party only once. Seen from the outside, one may argue that even just attending the community repair session taught most of the participants the most important thing – that such a practice is not dangerous nor impossible. Despite

being a somewhat intimidating experience, electronic repair is possible in this setting. And it can be both empowering and fun. Intangible learning that expanded participants' imaginations and confidence was as such greater than building practical skills.

From the perspective of greater environmental sustainability, we may also question what are valuable learning outcomes of an initiative like community repair. Though I will revisit this theme in chapter five it is also relevant to mention the issue here. A girl who visited the Restart office taught me the expression 'buy shit, buy twice'. Still fairly new to the Restart context at this point, the wording struck me as quite genius. During my stay this phrase came to summarise many of the conversations that typically would present themselves in and around the Restart office or at the Restart Parties. Such conversations would concern which producers made more durable and repairable products, comparisons between commercial repair shops, the role of warranties, consumer rights, how to recycle or who were considered 'the good' and 'the bad' guys in the technological industry in terms of repairable design. While most participants would refer to technical repair skills when they questioned how much they had learnt, I would argue that becoming aware and more knowledgeable on these issues, enabling people to know for example what are better consumer choices, is most certainly a large part of the learning dimension at the Restart Parties. This reemphasises how learning at the Restart Party also was tied to learning about the larger agenda. As Restarters helped connect the dots between production, consumption and waste in the electronic sector, participants learnt about the reasoning and the identity of the community.

Learning will be strengthened as participants return, or increase their participation, moving along the spectrum towards becoming Restarters. If the participants return to the Restart Parties, who is a novice and who is a Restarter will arguably change with how their experiences, expertise and identities evolve; as knowledge and know-how is exchanged, different materials and tools introduced, and participants are exposed to various repairs (Becker 1963).

4.7 Summary

The social practice of community repair is shaped by competences, the material world, cognitive process and the context of social situated learning. Participants brought a large variety of devices to the Restart Parties. These were items that often had a special function in the life of the owner, had a high economic value or were valued because of a social or historical relationship. This resulted in a range of different types of dynamic and static repairs at the Restart Parties.

Considering the amount of different devices and types of challenges that were present at the Restart Parties, community repair demanded a quiver of competences. Yet, while to have specific skills, techniques and know-how was a clear advantage, motivation, persistence and creative solution solving was equally, if not more important to repair devices successfully. These competences were shared and located in the community of practices, rather than necessarily within each Restarter.

Different items, their faults and designs affect the repair process in various ways through agency and scripts. A common theme was nevertheless that most electronic devices and the way they were designed, installed insecurity in the participants. Repair manuals are spread over the Internet, and make a global pool of repair knowledge available. Participants were on a continuum between being Restarters and complete novices. Yet, even the participants experienced with practical work or DIY felt shaky when attempting to open their devices, despite previous knowledge and experience. That confidence is crucial for people to dare transgressing 'black boxes' demonstrates that novices might not take up the practice even if repair manuals are available online. These reflections reinforce the challenge in designing electrical devices for DIY repair (Rosner and Ames 2014).

What signified the Restart Parties, facilitating a community of practices, was the way it catered for social situated learning. Community repair helped participants to transgress, reclaim and repair their black boxes by giving them support and empathy through collaboration. By giving them a safety net and exposing them to various types of repair they placed the mastery not in the person, but in the community of practices. The Restart Parties enabled even motivated novices to take up this sustainable, yet old-fashioned practice.

5 Narratives and alternative visions

“Practical skill is a tool rather than a salvation, but, lacking it, issues of Meaning and Value remain abstractions” (Sennett 2012, x).

Meanings and images circulate and move (Shove, Pantzar, and Watson 2012, 53). The following chapter examines how meaning was attached to the practice and what meanings participants gave to community repair. Attitudes have for a long time been overemphasised as a source of change, not considering that practices are shaped by a range of elements (Shove 2010, Nordgaard 2001). Yet, what meanings and values people attach to repairing in communities is an important source of knowledge for understanding how and why repair has been taken up anew. I argue that repair here is de-connected from old images of austerity, backward societies and mundane, boring tasks. An alternative narrative is told as people manage to fix and open the broken and seemingly closed devices, by cooperating and sharing skills in a positive learning environment. This reclassifies the concept of repair by infusing it with positive meaning. It also establishes it as an elaborative metaphor for how to become renewed as a *caring creative* in a more sustainable, non-consumerist society.

5.1.1 Reflections on unsustainable practices

My informants related the practice of repair to a principle of caring they felt had been lost in today's consumer society where to throw away is the most common logic. Nick commented on how he perceived the throwaway attitude: ‘People are just like: “Oh I can't use it...” and they are not thinking, “How am I using it? Why doesn't it work?”’ My informants found the exercise of thinking twice, in order to avoid throwing something away, to be largely absent: ‘I think I would be hard pressed to find many people who wouldn't assume that when their camera or whatever broke down, they wouldn't have to get rid of it and get another one... Most would immediately switch into consumer mode (...)’ George remarked. They almost saw the throwaway attitude as a disease that had sifted into all parts of society. Katharina persisted:

I would even dare to say that it goes into relationships. You know when relationships become complicated I think a lot of people often nowadays just think, oh well, we'll break up and look for something that is more

exciting and better. Rather than trying to fix it because it may be taking more effort to do so.

At the Restart Party reflections on unsustainable practices linked to electronics seemed to be sparked as devices were opened up and came to work as root metaphors for unsustainable practices attached to electronic. A root metaphor works as a symbol, but has conceptual elaborating powers. It can therefore interconnect seemingly disparate elements, and help us sort out our experiences and how everything hangs together (Ortner 1973). I will elaborate. In the moment of having a broken device participants were forced to not only look *through* their devices, but to interact *with* the devices (Verbeek 2004). By opening up the insides of radios, iPhones, TV's and other electronic items, questions arose that were linked to production, design, planned obsolescence, consumer choices for buying more repairable objects, options of recycling, and issues of dumped e-waste. Hence unsustainable practices found along the whole lifecycle of electronics. The electronics and their insides became direct reference points to these topics. Rosner and Ames argue that repair work, and facilitated repair especially, has 'the power to transform how people see and understand technology' (2014, 326). There is a very close link between working with materiality and symbolic reflection (Teschfaye 2013, Sennett 2008, Brook 2012, Crawford 2009). I would argue this is why participants would link the mundane physical practice so strongly with more overarching questions related to challenges intertwined with electronics. The inside of the electronics devices worked as root metaphors for all the challenges inherent to the electronic industry and points within the lifecycle of electronics.

This is not to say that conversations at the Restart Parties always revolved around these topics. However, during my interviews it became clear that participants found these issues closely tied to the question of repair. Reoccurring themes were extraction of limited raw resources, energy efficiency and an increase in e-waste, 'shipped and dumped' in other countries. My informants were frustrated by the current system, how things are planned for obsolescence and how people in general do not care for their things.

5.1.2 An alternative vision

Unsustainable practices attached to electronics were negative issues my informants saw as consequences of a consumer society. The Restart Project and Restart Parties on the other hand came to symbolise an alternative narrative or vision for how people could deal with these issues – not as passive recipients of the system, but as agents actively trying to change their own situation together. The concept of narratives is useful here; in the sense of seeing the repair journeys that participants went through as a type of narrative. We are all narrators, Fludernik emphasize – this is a type of language we use to tell the stories of our lives (2009). Narratives are powerful in this respect because they have the ability to organise and structure our perceptions of the reality (Fludernik 2009). By demonstrating that people actually *can* repair seemingly un-fixable, un-penetrable ‘black boxes’ an alternative narrative was established at the Restart Parties. To put it bluntly: the repair journeys demonstrated that people do not have to be passive recipients of a wasteful and consumerist society, driven primarily by economic interests and producers who want people to throw away short lived devices and continue to consume. If we work together in cooperation and share our skills we can be active agents and repair our devices, without having to get rid of the old and consume new ones. The following section will establish how elements of being active, cooperating and sharing have come to be central at the Restart Parties, thus reshaping the concept of repair altogether.

The founders did not see Restart as a type of anti-waste or anti-technology, hippie movement. However, by forming community repair as a sound alternative to continued consumption of electronics they did arguably establish Restart as a symbol for a more sustainable, reintegrated society focusing on circular thinking, and where lay men are vital to drive change.

Firstly, Restart established ‘community repair of electronics’ as a viable concept in itself, making this a more normal, legitimate practice that should be considered as a viable concept in today’s society to reduce consumption. Nina stated: ‘it is something that is open to public - anyone can do it. I think when there are more people I feel more encouraged to participate and maybe talk about it. It is not an exclusive club, basically. It is legitimate’. That community repair is a new concept to most people was reinforced by Anahita who burst out that it would never have crossed her mind that

people might be repairing electronics in communities before she discovered Restart. Bourdieu used *doxa* to describe the tacitly and unspoken elements of practices, and to bring attention to the social rules and values that affect them (Sahakian and Wilhite 2014). By bringing the practice of community repair into the realm of discussion, debate and argument, the doxa of repair among citizens, the social rules and values that has been constraining the practice, can be contested (Wilk 2002). Although repair is an old practice with long historical traditions, modern development has (as previously mentioned) left repair to be associated with the past. Janet's story about her friend exclaiming 'so it is actually real?' after seeing Restart featured on BBC emphasizes the point. Repair has become a much neglected, and not-opted for solution in the moment of failure. Restart challenges this doxa partly by simply bringing the act of repair into public discussion. It is only possible to contest a practice once it has become real. By lifting the idea of community repair into the public realm, as an alternative strategy to constant consumption, Restart has contributed to challenge old ideas about repair.

Secondly, by placing Restarters and participants into the narrative as the central protagonists, letting participants experience that it is possible to transgress the seemingly closed, un-reparable devices through social situated learning, Restart reinforced that it is possible for people themselves to be active agents and take control in the situation when something breaks. The word 'active' is chosen here as a general term for describing an active role as opposed to being a passive recipient of services where the work is done for you. Along the spectrum of novices and Restarters, this was appreciated at different levels. To someone like Nick the idea went as far as wanting to be self-reliant: 'I kind of have a DIY ethic that I feel like I should learn how to do everything myself, whatever it is'. To others it was more linked to just being practical, or active in ones own life. Nina described why she liked it: 'I find it as an empowerment, it gives you confidence, and it also enriches my mind, you know, being able to be self-sufficient. It feels better'. To participants, especially the ones new to repair, the Restart Parties demonstrated that even in the meeting with seemingly disclosed devices, people could be in charge and get them fixed.

Thirdly, Restart established how skill sharing and cooperation could be tools for enabling everyone to live sustainably, also the ones without the skills and competences to do so on their own. Sharing skills and cooperation made up for the fact that many

did not have the skills to repair, enabling participants to be active agents repairing their own devices. 'It doesn't have to be that everyone knows how to fix things themselves. If they can take it to groups like Restart, then I think that is great' Simon reflected. 'Cooperation can be defined as an exchange where the participants benefit from the encounter' (Sennett 2012, 5). Katharina commented on how value was created for both Restarters and participants: 'On one side you have someone who goes home with a computer that is working a bit better, and on the other side you have someone who was able to repair it and being appreciated for it'. Communities were not only valued from a social perspective. The Restart Parties were appreciated for facilitating cooperation and skill-share in order to let people act sustainably.

Cooperation as a tool for change was often associated with a more non-consumerist society, where people connected with each other rather than businesses. 'I really like the idea of people doing things for each other as a part of the community' Simon stated. The practice of relying on other people was not only seen as important in order to step away from supporting only competitive market structures. The act was also considered to have environmental, economic and social implications. Emma stated firmly:

We need to do more about green issues, and I would like to see more of a sharing economy, rather than just the pocket making economy we have. I would like to see much more of these kind of voluntary groups where people share skills, instead of it all being about money. Sharing skills, sharing time, developing communities, as an alternative to profitmaking. That is partly why I go. It would be great to see more and more groups like that.

Community repair was valued for weaving people together, instead of people and businesses. Nina reflected:

It is good to connect with people around where I live. (...) If I keep buying new things, it will be like connecting with people who sell, commercial people. So it is cooperation between you as a consumer and corporations rather than a consumer and society and neighbours and society. I think in a way I want to connect with people who live around me.

Sennett notes how cooperation has decreased with capitalism, with rising inequality translating into social distance in everyday experiences (2012). Participants often argued that cooperation was important to enable people to live more sustainably and to not deplete the planet in the same way as through capitalist competition. Cooperation in communities was linked to a non-consumerist, non-capitalistic and more ecologically sound path.

That these strategies also *felt good* was key to creating a positive narrative. Participants underlined that there were benefits to repair that went beyond the economic saving: ‘There are more benefits than to buying new things. I think it is more than the commercial and money itself, but you can’t measure it in money’ said Nina. The meaning of repair merged with meanings of other practices and was as such given a heightened value: To conclude with Simon’s words:

It is nice, it feels practical, you get to fix something, learn something and meet people as well at the same time. So that combination: doing something for yourself, but also for the wider world, stopping things going to the landfill, and then it’s social as well, that is great.

By merging these concepts into a narrative, Restart came to tell an optimistic story about ordinary people being part of the solution. Not everyone experienced having their device fixed at the Restart Parties, and yet most were exposed to this story, so to say. The process of repair became a way of rediscovering one’s self, following an alternative strategy for reintegration with society (Brook 2012). If we cooperate to share skills and time, people can be in charge of creating a more sustainable environment while at the same time being social and having a good time.

5.1.3 Re-classifying repair

A practice changes as one of its elements change: competences, materials or meanings (Shove, Pantzar, and Watson 2012). Repair as a practice became re-classified at the Restart Parties through this narrative, when new, separate meanings became attached to the practice. It came to represent not only a mundane activity to my informants; a computer fixed, some money saved, or an activity infused with a grave morale that we should take care of our material, and to some extent also social, relationships. It was merged with positive connotations such as being social, learning and being an active

solution finder. To them it became a solution-oriented, upbeat and in many ways forward thinking concept - although to many it also held an alternative, anti-capitalistic and utopian sensibility in a broader sense. Nina described how she saw this merging of meaning as a strength of the practice: ‘You can learn something new - some new skills, and it gives you a lingering memory. When you buy something, you get a receipt, and I don’t feel anything. I have affection with the Restart Party’.

Restart and the Restart Parties came to not only symbolise the practice of repair, but became also a key scenario symbol for a way of stepping more gently on the planet in general (Ortner 1973). Key scenario symbols provide strategies, ‘programmes for orderly social action in relation to culturally defined goals’ (Ortner 1973, 161). Katharina commented:

Ideally it would be changing attitudes internationally, and not just how to think about electronics again. It should be a movement that goes across all fields really. In the way we think about resources, whether that is being wasteful with your energy or food, or how you travel or how you see people, or meat consumption.

What is considered a culturally defined goal change between different contexts. At the Restart Parties I would argue that the cultural goal contrasted with that of a consumer society. The narrative told by Restart spoke rather of a less wasteful, more caring and cooperative society as the aim. Most of my informants did not communicate the objective this directly, but were concerned about having less e-waste, ensuring more sustainable extraction of primary resources and seeing people less driven by consumption.

Community repair became a key scenario symbol for a way of thinking, suggestively summarised as being a caring creative. Witoszek proposes the term ‘caring creative’ as a new conception of humans in a more sustainable world (2016, 149). Describing how a new hierarchy of values is central to a more sustainable future, Witoszek writes how ‘inventive cooperation and care for the other – including nature – would be appreciated higher than conventional, individualist fiscal success, ”smartness” or adroitness in playing power games’ (2016, 149). This concept is very suitable to illuminate the range of values participants attached to what they saw as the core of community repair. Nina appreciated how The Restart Parties pointed to action beyond repair, to implicitly

being a caring creative; as it pushed for action linked to repair, non-wastefulness and lower consumption patterns:

I think it is a good way to make people think that you can extend the life of your electronic device, thinking more about sustainability and using them for a longer time. Lately we are always coming back to fashion where you keep buying new things but not keeping it for a long time. I think it is a good way to make people think there are things we can use for a long time.

By stepping away from the doomsday tale infused with messages that there is nothing we can do as victims of a system, the ‘caring creative’ became, in this context, inversed with being a person who would just consume and follow the throwaway tradition. The narrative became important to participants to communicate and spread these values, thoughts and concerns for interlinked issues - their own practical, repair journey working as a good starting point. Of my informants 7/10 had been talking about the initiative to friends, family or colleagues after the event.

5.1.4 Doubts of disruptions

That my informants had picked up on this narrative and the positive messaging did not mean they instantly started to believe that community repair would save the world. It gave them hope, but they did not necessarily think that people would start to act as caring agents, just because they were given the opportunity. Most of the participants had been to the Restart Parties several times, or were certain they would come again. Still they were sceptical about the potential of community repair and were cautious to give it meaning as a real disruptor. ‘It is all good, but it is just getting those ideas out much more widespread, and again that is politics, so I don’t know how you would do that’ George stated. He felt that while the Restart Parties might be good for any pensioner in a first world country, it was quite different for anyone his age group (50) who felt they had too little time. My informants were doubtful if DIY repair would be possible in the future, especially if devices were to continue being made even less repairable. They questioned if people in general would have time, or if people would be interested if there were not economic incentives; would not most people always strive for convenience and a comfortable life in front of the TV? These were repeated questions my informants seemed to ask in moments of doubt.

Several of my informants expressed on the other hand that to them it was a 'no-brainer'. Restart was praised for managing – in a positive, uplifting manner - to do a symbolic inversion of being a caring creative (versus the concept of 'throwing away' in a consumer society). 'Restart is really important just to come away from the throwaway society that we have become' Katharina added. So although the informants doubted that ordinary consumers would start repairing, many hoped it could lead to a heightened value of caring that would downplay wasteful ways of living. This belief was mirrored in the Restart founders. It was clear they hoped to have a disruptive effect, and Ugo mentioned several times during my stay how even recycling had started in grassroots communities. Then again, they also anticipated that Restart might eventually drive a focus towards commercial repair, rather than everyone starting to repair in communities. Neither participants nor the founders saw Restart as a competitor to the commercial repair industry though. Ugo and Janet were clear they saw it rather as complimentary; Restart heightening awareness of the importance of repair, costumer rights, warranties, different repair shops and which products to buy that were more repairable. They predicted that manufacturers would take over the whole supply chain in a circular economy, being the ones responsible for taking care of items. Only a marginalised group of hackers would most likely repair their own devices, Janet predicted. Along the way, they hoped Restart could push the discourse, demanding durability and reparability by demonstrating how citizens are so frustrated in the current system that they even spend hours undertaking repairs themselves.

While not believing that 'ordinary people' would start taking up this restorative practice, both participants and founders hung on to the anticipation that a symbolic inversion between caring in cooperative communities and throwing away in a consumerist society would help the ship turn around. They hoped the positive narrative would help prove to the outside world that 'repairing' as a renewed concept is something to take up on.

5.2 Summary

With the aim to further illuminate what characterises the social practice of community repair, the above chapter investigated how meanings were invoked and what meanings participants attached to the practice and subsequently to Restart. Conversations and

reflections on unsustainable practices related to electronics were sparked as participants were forced to look *at* their devices during the repair as the inside pointed directly to disparate challenges along the lifecycle of electronics. The chapter demonstrated that The Restart Project by establishing the concept of community repair, and letting participants experience the repair journey hands on, has established a positive narrative that humans can be active agents, and part of the solution to create and live in a more sustainable and less wasteful society, by cooperating and sharing skills.

The concept of Repair was re-classified in this process, inversed with the act of throwing away and infused with new and more positive connotations and meanings. Community repair became established as a key scenario symbol for being a caring creative, a strategy to reach a less consumerist and more ecologically balanced society. Both the participants and the founders of Restart found this narrative to be important rather as a source of positive hope - an alternative voice - than as a practical solution for how all citizens in a future world would live and act. In this respect they hoped that a reclassification of repair, in addition to greater awareness of ecologic challenges related to overconsumption of electronics, would have a spill over effect, leading also to a more thriving commercial repair sector.

6 Community repair and the transition to a circular economy

The purpose of this thesis has been to shed light on the way community repair of electronics contributes to social, ecological and economic dimensions of the UK's circular economy. The proceeding discussion builds on the former three analysis chapters, and will be guided by the research question: *'To what extent can this largely restorative practice be innovative?'* A set of paradoxes point to the heart of this discussion. Firstly, it may seem puzzling that people are taking up an old, largely restorative practice of repairing electronics, in the modern consumer city of London. Secondly, that cooperation and care for one's things is blossoming when throwing away and continued consumption are the general norms. And thirdly, it is intriguing to consider that this movement of community repair should be perceived as an unimportant challenger to commercial repair, bearing in mind the speed at which it is proliferating in London. The chapter will start by summing up the former three analysis chapters, with a short reiteration of the model of a circular economy and the social practice of community repair. Following is a discussion of how Restart contributes to social, ecological and economic realms of a circular economy. I argue that Restart Parties are a demonstration of innovation in communities where old, traditional practices are re-established as new, and where a community is forming with an alternative cultural vision for how we may live more sustainably. Defining Restart's role within an economic dimension is on the other hand not so straightforward. Its future impact is interlinked with changes in a social, economic and ecological climate. I will conclude the chapter by discussing and problematising this issue, illuminating how the scale of Restart's impact is interlinked with larger discussions concerning the future of the UK's economic system.

6.1 The model of a Circular Economy

The introduction of a circular economy is one of the more ambitious initiatives in the European Union to improve the ecological and economic climate whilst creating more jobs within Europe. It is a bold effort to implement more sustainable systems. By looking beyond a linear consumption line the aim is to enable resources going in loops,

avoiding these resources ending their lives too early at a landfill. A circular economy advocates for many of the same changes as Restart — such as a redefinition of what is waste, a larger tradition of repair, and more durable and repairable devices (European Commission 2015a, Lacy and Rutqvist 2015, Ellen MacArthur Foundation 2015, WRAP 2016b). A transition to a circular economy, as forwarded by the EC, Defra and WRAP, is hoped to be achieved through better waste management and waste minimisation, such as recycling, reusing and repairing. The transition is to be pushed primarily by new and more resource-efficient business models that can make profit from ‘closing the loop’. Shifting ownership from consumers to businesses, and making businesses responsible for items throughout their life cycle, is highlighted as important methods. The model supports economic growth and an increase in consumption of goods and services.

6.2 The social practice of community repair

It may seem like a paradox that people in the consumer-driven society of London spend time together in communities to repair electronic devices. It could arguably be perceived as a time consuming, mundane and old fashioned practice, unnecessary in a consumer society where new devices are cheap. Yet, as Restart Parties, or community repair, has spread all over London and to eight other countries, it is clear that not everyone finds it too tedious.

There were a variety of participants who attended the Restart Parties, from high school students to retired pensioners. They represented a variety of socio-economic backgrounds, ethnicities and professions. This overall diversity was facilitated by the fact that the Restart Parties moved around and were often co-hosted by a range of other organisations, community centres and councils who tapped into dispersed networks. While many of the participants shared a wish to not be wasteful, and often to save money, they were not necessarily typical environmentalists, encompassing both those who were highly interested and keen to learn and investigate technology, and those feeling very alienated by electronic devices. From my analysis, it was clear that the practice of repair fitted quite well into the habitus of many of the research participants, as a new strategy for not being wasteful, for saving money or often, a strategy for learning new practical skills. The value of not wanting to be wasteful could often be

traced to heritage, relations or experience from the Global South where re-use, repair and re-purposing of things is more of a common everyday practice. Yet, it became clear that most would not have repaired by themselves if they had not been given the opportunity of attending a Restart Party. There has never been a strong culture for repairing electronics in the same way as with mending clothes or working with wood. Most of the participants perceived electronic repair as quite different to general DIY. Even participants who were fairly practical in other ways did not feel these skills were transferable to electronic repair. This suggests that while repair is an old practice, electronic repair is in fact quite a novel concept, and new to most of the participants.

That iFixit.com has created a huge, global and open source knowledge pool online, with manuals for repairing a whole range of different electronic devices, could lead us to assume that the scope for introducing DIY repair of electronics was already filled. However, while iFixit.com spreads knowledge, this is arguably not enough to make and enable novices take up the practice. Collaboration through social situated learning is key to getting people across perceived barriers and undertaking the practice. Agency that influences and shapes practices, is distributed among things, people and social structures (Sahakian and Wilhite 2014). There is, as discussed in Chapter 4, a great deal of power in the scripts and material knowledge of objects. Confidence and persistence to challenge the material knowledge of devices was often the largest barrier for novices to start opening up devices and start repairing. Peer-to-peer support from Restarters was crucial to demystify the inside of devices and to guide participants through the repair journey. Participants were encouraged to take control, overcome their fears and transgress the firm shells of electronic 'black boxes'. The shared competences in this community of practices: skills, techniques, endurance and creative problem solving were by no doubt important to succeed in the repairs, but in order to enable new people to undertake the practice, social situated learning in the community of practices was vital.

The 'broken world perspective' illuminates how 'the moment when something breaks' is not only infused with frustration, but also reflection. Chapter five reflected on the way Restart used the halted moment in space and time as a powerful opportunity for encouraging and inspiring reflection on the way we consume. People are forced to not only looking through, but at their devices in the moment when they break - reflecting

what to do next (Verbeek 2004). Opened devices pointed to seemingly separate issues of production, design, use of materials, consumption and disposal. The organisation seized the opening in time and filled it with action that implicitly questioned the social constructions of a consumer society, whilst at the same time demonstrating that there is another way of doing things.

In doing so, Restart has established a powerful, but alternative narrative, stressing how sharing skills and co-operation in communities can enable us to be active agents and not only repair seemingly disclosed irreparable objects, but also be part of the solution in driving change towards more sustainable consumption. People do not have to be passive recipients and accept that things are to be thrown away before the end of their life, thus buying into continued consumption. Narratives are powerful to guide actions and give meaning to practices (Bruner 1990). Everyone uses narratives in their daily lives to structure and organise reality (Fludernik 2009). The above narrative gave participants a tool to orient themselves and understand how they could live and to a greater degree contribute to social and ecological sustainability. Many of the participants shared some of these values already, wishing especially not to be wasteful. They did not necessarily manage to live them out in London, but Restart instilled hope that such activities could become more common, enabling them and others to live these values out to a greater extent.

Restart Parties are proliferating in London, but the values found at community repair were not mainstream. Shove et al. suggest that ‘meanings “travel” as practices are grouped, regrouped and categorised in different ways’ (2012, 61). Through the narrative, repair became connected to more positive feelings about learning, being social and doing something good for the environment. The concept of repair was reclassified as a new concept. It came to symbolise a more overarching way of being a caring creative: taking care of things, aiming to have a low ecological impact by not being wasteful and consuming more responsibly. This way of doing things stand in stark contrast to a consumer society where the way to act in the world is primarily through consuming goods and services (Miller 1995). Participants got confidence and hope from the Restart narrative, but did not necessarily believe this would become the norm. They had as such a very sober view of the potential of Restart Parties. Community repair and Restart became nevertheless a symbol for a society that is less

consumerist, equal and caring. As such the movement gave hope of renewal and played an important role in building an alternative vision for how we may structure society and live more sustainable.

6.3 Contributions to ecological, social and economic dimensions of a Circular Economy

The concrete ecological impact in terms of CO², water and energy saved from repair of electronics may be perceived as small. Then again, considering that the ‘material volume’ of producing a 17inch laptop is about the same as a middle-sized car, we should not dismiss the actual ecological impact of repair (Williams 2004). This volume is saved from processes of production, as well as processes of dumping or recycling e-waste. That innovations are small does not mean they are unimportant (Gronow 2009), and the ecological impact of repair may go beyond saved devices. The UK sees waste management and waste minimisation as different strategies (Tonglet, Phillips, and Bates 2004). As seen in chapter two, reuse, recycling and commercial repair are seen as separate loops needing separate strategies within the circular economy. Restart ties practices of usage, repair, recycle, and consumption together by linking them to an overarching concept of being a caring creative. Community repair becomes not only about repairing, but about care in general — not seeing consumption, waste minimisation and waste management as separate practices. Community repair can be seen as a tool to link seemingly separate practices related to waste minimisation and waste management among people in a local circle.

Advocates of a circular economy argue that there is a circular advantage to be found for businesses. By re-conceptualising waste, shifting the ownership from consumers or by using digital solutions to enhance repair and recycling, they can make profit from ‘closing the loop’. (Lacy and Rutqvist 2015). There is however little focus on how we may introduce the circular logic to ordinary people. By investigating at a micro level how initiatives like Restart works, we may gain knowledge on how waste minimisation and waste management efforts can be pushed forward among citizens.

It is not certain that by saving CO² and energy from fixing a laptop there will be a decrease in CO² and energy used overall. A change in one practice can subsequently

change others. This is important to bear in mind when we discuss energy consumption at an individual level. Reduced energy consumption from change in one practice may lead to a rebound and increase in others: the CO² savings of repairing and taking care of electrical devices might be nullified if the feeling of having saved and contributed positively on one hand, leads one to reward his or herself with a weekend trip across Europe. It may however also create a change in a positive direction.

The act of bringing the practice of repair into the public realm may have more significant impact on a macro level. By contesting the doxa of repair and the social rules that have left it associated with the past, Restart implicitly questions a consumer society as well (Bourdieu 1977). The founders of Restart stated that their goal was not necessarily to change practices of repair, but rather to alter our relationship with electronics. By reclassifying repair and bringing it into the open they helped to fuel a renewed discussion on durability and our wasteful society. A concept cannot be contested unless it is brought into the open. This is arguably what Restart does by facilitating Restart Parties. This may help a transition to a circular economy by leading to change in interrelated practices among more 'powerful' stakeholders in a circular economy, such as industrial designers, policymakers and business entrepreneurs.

Witoszek (2016) calls for a new cultural vision that is not filled with apocalyptic fear of an environmental crisis, stressing that we need innovation not only in science and technology, but also a 'new battery of images, narratives and practices' (2016, 141). Restart attempts to forge a worldview that a more sustainable future can be reached, and that people can be part of the solution as sharing, co-operating and caring creatives. Processes of sharing and learning between practitioners and practices can be transformative (Sennett 2012, Shove, Pantzar and Watson 2012). This is valuable considering the world is in severe need of repair (Sennett 2012). To establish that we can repair our devices is as such a strong metaphor for our ability to repair the neglected environment, and we should not neglect the power of such a metaphor. In order to adapt to a world with resource scarcity and climate change, it is valuable to set new cultural goals that are grounded in practical solutions for taking up both old restorative principles and reframing sustainable practices. The rhythm and logic of cultural development involves a constant return to the past (Bell 1976, 13). Re-establishing a tradition for repair is a return to the past, but also a creation of

something wholly new. I suggest that the social practice of community repair manifesting in communities in London is not the same as the old practice of repair, as how it may be perceived based on traditional connotations. Restart may not represent innovation in the classical Schumpeterian sense as a force of ‘creative destruction’ (1942). Yet, it is most certainly innovation in forging sustainable practices, and social innovation that builds communities with a new and more sustainable worldview.

Community repair is slowly but surely establishing itself as a viable and strong concept in London. However, practices can emerge, persist and disappear. Sustained change is difficult to predict (Sahakian and Wilhite 2014). The materiality of things can change, competences can be gained and lost, and meaning can change correspondingly. A long-term review of the development of community repair is clearly outside the scope of this master thesis, and I can only provide some suggestive thoughts that problematise this matter. We cannot assume that community repair has come to stay. Often participation is vital to keep a practice alive (Shove, Pantzar and Watson 2012). As Restarters and participants come and go, there is not a constant fundament holding up the practice. Innovation in practices is as such not a once process. It is an ongoing process (Franke and Shah 2003). Neither should we assume that people go off and start repairing, keeping up the practice on their own — not in the current situation or if the community disappears. This is not necessarily the goal either, but it is important to keep in mind that the mastery lies not in individual Restarters or participants, but rather in the community of practices (Lave and Wenger 1991). Keeping the community going is as such fundamental to hold the practice alive.

Restart’s ability to diffuse and spread the Restart Parties is linked to opportunities embedded in online communication tools. Processes of community repair draw on knowledge from online knowledge pools such as iFixit.com, making community repair a physical, face-to-face extension of this global community. Restart also spreads the concept back into the global community by making all the knowledge, conceptual thoughts and materials — like a downloadable ‘package’ for ‘How to organise a Restart Party’ — available online for free as well as being open source (2015). This two-way communication between the local and the global repair movement is an important feature of the initiative. Online communication was also key to allow facilitators, Restarters and participants to connect and find each other in new and

profound ways that stand in stark contrast to the way community initiatives would be organised in the era before online communication was mainstream. New communication portals, such as meetup.org, have further improved the communication. These qualities gave the initiative an entirely different starting point than if separate, single communities were to build competences, attract Restarters, spread and expand community repair on their own, in separate pockets of society. The communities in London holding Restart Parties are local, but they are not isolated from each other as they are connected in new ways that are facilitated by the information society.

By standing on the shoulders of a global, online community Restart does not only operate in the local circle of a circular economy. They are also situated within a global circle. That such a concept can spread quickly should not be dismissed when looking at how Maker spaces, Fablabs, Techshops and Hacker spaces have proliferated all across the world (Fonseca 2015). Making and repairing is tightly interlinked on a continuum of practices. Hacking can also be a type of repair. Community repair may give birth to sustainable practices and drives social innovation, but its long-term impact will depend on how well organisations like Restart manage to diffuse the concept to other places, cities and countries. Considering that communities in different physical locations are able to connect and draw on shared, global knowledge, existing online may seem to brighten this case. If the UK however gets a new and thriving commercial repair industry, if devices are increasingly designed not to be opened or if the Internet of things along with new business models change the ownership of devices – leaving the question of repair with retailers and producer and not the laymen – the future of DIY or community repair may seem dark. This is not necessarily negative for the goal of increasing repair, but it may hinder the concept of *community* repair to spread.

The answer to the question of how community repair may contribute to the UK economy is not straightforward. One suggestion is that it depends on the extent that community repair contributes to a commercial repair industry, by for example bringing attention to the importance of repair from an environmental perspective. Both community repair and a circular economy aim to reduce negative ecological impacts from consumption of electronics by encouraging more repair. However, while a

circular economy pushes for a transition by focusing on a competitive market, increased consumption and technologic development, Restart focuses on engaging citizens through co-operation, changes in norms and values, and expanding by building pockets of strong communities that are connected through global knowledge sharing and communication. That the two models follow distinctly different strategies does not mean they necessarily oppose each other or are incompatible. Restart sees itself as supporting a repair industry through a change in the throwaway culture, showcasing repair as a good alternative and by enabling people to make better consumer choices; making them aware of the truth in sayings such as one that I heard in the Restart office: ‘If you buy shit, you buy twice.’ More repairable products on the market would possibly also lead to more repair opportunities.

Where the philosophy of a circular economy and community repair especially diverge is the way they embed consumers and citizens into their models. While Restart hopes citizens will play an active role as autonomous agents, the most classic models for circular businesses design citizens out of the loop, so to say. These models are largely designed to take charge over the whole supply chain. Consumers are included as passive recipients and unsustainable consumers through shifts in ownerships or in a system driven by the Internet of Things or smart devices (Lacy and Rutqvist 2015). Restart and the circular economy are in this respect on two different wavelengths, and we could question whether there will be a space for Restart in the future. These technologies are powerful, and both Restart and the representatives of WRAP were certain that Restart’s most important role would be in terms of making people more aware. Janet reiterated this point in our interview. In the future we may have two consumer groups, she believed — the majority of people of whom follow the system of a circular economy, and a minority of more invested people who still wish to repair or engage with their things in a closer relationship. Both the founders of Restart, the participants at the Restart Parties and WRAP considered Restart as marginal - although definitely compatible - and at the best supportive of, a commercial repair sector.

6.4 Discussing the impact of Restart

I could have left it at that, concluded that the concept of community repair is uplifting but marginal, and that it probably will be marginal in the future. Especially considering

how a circular economy may challenge the practice of community repair – leaving it to be a city on a hill to put it in Rosner’s words (although the Restart Parties are based in flat London, and not hilly San Francisco). Community repair in this situation going as far as representing a ‘theatre for alternative industries’ where devices are made the centre of an egalitarian community, showcasing the power of creative re-manufacturing (2014). Yet we should not underestimate powerful symbols on the periphery and to stop here would be to close this discussion too soon. So all things considered, is community repair only a type of staged activism to kindly remind us that alternatives exist? Or, to take the conversation further, is Restart part of a larger shift in the way we organise our societies – a sign that classic competitive market structures and the way we use resources are changing? Some of the more controversial thinkers of our time argue the equation is not this simple. Restart has the potential for widespread diffusion as the open source concept and repair knowledge can be shared with a global audience and built into local communities. But is this likely?

In today’s consumer society most people may find community repair to be time consuming, and not even interesting as they would rather buy new items. Then again what if the social logic of consumerism was broken, and people started favouring community repair as a way of consuming experiences or preferring to co-operate and ‘pay’ with their time instead of money? Is this completely idealistic, or does this logic serve a purpose? Would community repair compete with commercial repair within such a scenario? This is a complex matter because it points to a much larger discussion on what the future holds for our society. Restart may be unimportant in the current economic system in the UK, but it could hold a larger position if the economic climate was different¹⁵. I am neither an economist or in a position to know whether such a shift will happen, so I will mainly provide questions. These are still important to deepen our understanding and to point out that there are no straightforward answers. Restart may be part of a bigger value-charged paradigm shift that will increase its importance in all dimensions. To demonstrate the dialectic relationship between transformation in

¹⁵ It is here relevant to mention that Brexit happened after the closure of this thesis, in June 2016, leaving the UK in an uncertain and unpredictable economic situation.

communities and large macro changes is also important to illuminate important areas for future research.

To explore the matter further it is worth looking at community repair again from the perspective of Naomi Klein, Paul Mason and Tim Jackson. Many more perspectives and thinkers could have been included here, but I have chosen these few in particular just to illustrate some of the complexities at play. The three thinkers all agree that increasing the sustainability of our planet is not primarily about how we can cut emissions. It is equally a question of how we can alter neoliberal capitalism, or change the current economic system that repeatedly and systematically depletes the earth for resources (Klein 2014, Mason 2015b, Hansen and Wethal 2015, Jackson 2009). These thinkers' views are highly controversial, although some of their ideas overlap with thinking found in the model of a circular economy. There is arguably a range of premises laid to build their argumentation that works better at theoretical macro level, than on a practical micro level. Nevertheless, they provide an interesting perspective. In the view of Klein, Mason and Jackson initiatives like Restart would not be marginal, but play a vital role in transforming society.

Klein, an environmentalist and social activist, argues that capitalism is the main threat to a sustainable future (2015). Pressure for change and new solutions has to come from below — neither politicians, nor technology nor green billionaires are going to save us (Klein 2014). Grass roots activism is the key to push a transition. While it might be quite unlikely that environmental ideology and activism will alter the core of consumer society, she provides an interesting perspective on responsibility that supports the idea that initiatives like Restart have a role to play.

Jackson supports Klein on one hand, stating that the global economic system needs altering to achieve sustainability, and that communities have an important role to play in doing so (2009). On the other hand, he contends that governments could support such a shift. Prosperity can be decoupled from growth, Jackson argues. Governments are forced to support consumerism in the current system. To keep people in jobs and ensure stability they are dependent on economic growth to avoid economic and social collapse. These goals can be secured in other ways, enabling us to turn away from unsustainable growth. Jackson does not wish to demonise innovation, but reasons for

structural limitations to the economy that are based on ecological boundaries. Material, social and psychological prosperity can be achieved through social innovation and new societal structures. For example, building communities and supporting a transition through structured wages, shared goals, assets and institutions that reduce social comparison and thus break the social logic of consumerism. In this picture, initiatives like Restart would be central in supporting the government to build a non-growth society and drive social innovation.

If economic stability was kept through citizen wages, Restart would be a way to keep people in jobs and enhance both economic and ecological stability. Yet, looking at the political climate in England, where institutions increasingly are privatised and the state relies on the market to solve most challenges, it seems unlikely that the government would want to take the leading role in such a transition. While the adaptation of a circular economy has proved a level of innovation within the EU and subsequently at a government level of the UK, it does not challenge competitive market structures or economic growth. WRAP communicated clearly how it had been affected by the current power structures: After two years of conversations with the industry about The Electronic Sustainability Action Plan (ESAP) they had still not discussed issues of durability or reparability, in fear of losing the partnership with the businesses. These topics were seen as too controversial.

Paul Mason claims on the contrary that the solutions and pressure will *inevitably* come from below. Information society is already altering capitalism at its core (2015b). With information becoming abundant, competitive market structures will be destroyed. Capitalism will be unable to keep up, regulate prices correctly and hold on to monopolies as people connect and trade in new ways. The EC claims a circular economy will bring jobs to Europe, but Mason persists that automation and digitalisation will leave people without jobs. As people get more time than money, and become free to choose outside of the competitive market structures through online communication, Mason argues new collaborative projects and ‘whole swathes of economic life’ will surface naturally (Mason 2015a). These ideas are highly controversial, but interesting. If we do have more time to spend on volunteering, working in co-operatives and sharing goods and services, then the concept of Restart - building physical communities as extensions of online platforms - is highly relevant.

Social co-operatives and face-to-face communities, melted with global knowledge sharing and communication, could in such a socioeconomic climate expand quickly. A 'sharing economy' has already started to fuel new forms of ownership, lending and new legal contracts. This could be an opportunity for circular businesses to control the whole chain (Lacy and Rutqvist 2015), but Mason persists that 'a new route beyond capitalism has opened up, based on promoting and nurturing non-market production and exchange, and driven by information technology' (2015b, 265). Citizen wages are not proposed as a solution, but as one of the ways, in which governments can make the transition to postcapitalism less painful.

None of these proposals are silver bullet solutions that are likely to take over the current system any time soon. Klein is not overly optimistic about the ability of grass roots activism to change anything, Jackson acknowledges that breaking the social logic of consumerism among nine billion people is a challenge, and Mason starts his book by acknowledging that postcapitalism seems utopian and will most likely exist beside capitalism for decades. After all, when Mason refers to an upsurge in co-operatives, shared economies, and trade in 'non-markets' he is largely referring to Greece where the economy is quite different to the one in the UK. Still, we should not dismiss that we could see large-scale changes in the economic or ecological climate in the UK. This could lead to people starting to vote by 'paying' with their time rather than their money, if they preferred to work and help others in communities like Restart. Participants at Restart Parties felt that 'paying' or giving their time was both more desirable economically and more convenient. It also gave them pleasure as they enjoyed participating; meeting new people and learning something new as they took a step back from consumer society. If such preferences were mainstream, it could leave a volunteer service like community repair as a competitive option, or service, compared to expensive commercial repair.

The question arises whether a future with postcapitalism - a society where we see a decoupling between growth and prosperity and where the norm is that people repair in communities - would be more sustainable or any better? Will such a shift to a non-growth economy actually offer us a more prosperous, relaxed, community-oriented and sustainable future? What if there was no other alternative than to repair in communities? Would community repair still be attractive? It is also debateable

whether people are likely to start volunteering just because they have more time. And will digitalisation even save us time in the first place, if it always demands that we are logged on? On a different note - while technological development may not save us, it is still important. To what extent would Mason's scenario manage to balance technological development, often pushed by capitalism, with a larger focus on keeping and caring for what we already have, to keep the economy within its ecological limits? Then again, as Restart demonstrates, innovation can also be to repackage old practices, making them novel.

Whilst it is impossible to fully answer these questions they are important to ask. If prosperity can be decoupled from economic growth and support greater sustainability, then we should perhaps ask if governments should not do more to facilitate a transition to a less consumer-driven society. It is difficult to predict whether change is likely to happen, as facilitated by the state, pushed by citizens fed up with consumerism, or forced through by a financial or maybe an ecological crisis. Capitalism is a strong system, able to adapt, create and destroy. Whether these forces will be weaved into the current system, or alter it at its core is impossible to know. Either way, or in combination, Klein's, Jackson's and Mason's thoughts and ideas illustrate strongly how there is not only one grand wave of change rolling over us, called 'a circular economy'. What waves Restart will surf on, may be deciding factors for what the future holds for the Restart Parties.

6.5 Final remarks

There are great ethical and environmental challenges linked to high consumption levels of electronics in combination with a throw away culture. In the EU in general, few electronic devices are long lived, repaired or even recycled. Attempts to re-introduce repair as the norm and how we consider resources are thus crucial. This thesis has attempted to shed light on the way community repair, under the name of Restart Parties, contributes to a transition to a circular economy within its economic, social and ecologic dimensions. Community repair of electronics is arguably a new practice. There has never been a solid tradition for electronic repair, and the Restart Parties enabled even novices to take up this practice. Participants at the Restart Parties represented a great variety of people, with a range of different backgrounds in the age

from high school students to pensioners. While competences and materiality by no doubt structured the repair processes, it was confidence injected into the participants through social situated learning that empowered participants to delve into the practice.

From a 'broken world perspective', Restart uses a 'halt in time' when things break – where people are invited to not only look through their objects, but also *at* them (Verbeek 2004) – to encourage reflection on the way we consume. The Restart story tells us that if we co-operate and share skills we can be active agents and decide the future of seemingly disclosed and irreparable devices, and on a macro level — of our society and nature. Repair was re-classified in this process as a new concept, transformed as it was filled with new and more positive connotations; of positive feelings and experiences of being social, learning something new, co-operating and saving devices from going to landfills too soon. In this process the social practice of community repair also tied together separate practices such as repairing, recycling and using and disposing. Restart Parties also stand in contrast to old community practices, as they are interlinked with global, online knowledge sharing, and diffuse knowledge from the parties through online networks, building the concept back into local communities worldwide. In sum, Restart Parties have established repair both as a practice and as a symbolising principle of being a 'caring creative': both at a micro level by taking care of one's own things, and at the macro level where one can take care of nature and the planet. As I have argued, community repair may not be innovation in the Schumpeterian term of Creative destruction (1942), but it is arguably innovation in that it fosters restorative and more sustainable practices. By embedding it in a more positive, ecologically sound and optimistic vision of the future - situated in a more equal community where social distance is reduced - community repair is arguably also a case of social innovation.

Having said that, Restart and the Restart Parties represent so far only a small countermovement within the megalopolis London, and it is not possible to predict whether the practice and the vision will be sustained long-term. While community repair may encourage commercial repair, its most significant impact may be in ecological and social terms within the related local communities. It is also important to bear in mind that innovation is an on-going process and we should not take for granted a long-term impact of new ideas. Neither should we assume that we know their exact

ecological impact. Nevertheless, while repair for a long time has been a neglected and forgotten practice, it is starting to prove that it is not out-dated.

I have argued that the goals of Restart aligned in many ways with those of a circular economy. Restart has contributed to keeping resources in the loop, not following a linear consumption line, and reducing environmental impacts from production and disposal. The impact of community repair could also have a spill over effect into commercial repair. Especially if repair continues to get heightened status and recognition, and if people become more empowered consumers, buying more durable and repairable devices. Yet, it was not clear-cut to what extent Restart has contributed to the UK economy. While Restart continues to be marginal, it has the potential to play a more significant role if the concepts and ideas of ‘paying’ with time, sharing and collaborating on projects, outside competitive market structures, were to become more dominating. No one knows what the future holds, but we should not dismiss the potential of great changes in the social, ecological and economic climates of the UK society, subsequently affecting the role of initiatives like Restart. Community repair may be perceived as out-dated, but in the context of great environmental, social and economic change it may also be a prefiguration for the future.

Appendices

Appendix 1: List of interviews

#No	Capacity	Sex	Area of Interview	Date
1	Attendee	Male	North London	21.09.16
2	Attendee	Male	Central London	02.08.16
3	Attendee	Male	South London	15.08.16
4	Attendee	Male	Central London	30.08.16
5	Attendee	Female	West London	25.08.16
6	Attendee	Female	Central London	23.08.16
7	Attendee	Female	South west London	13.09.16
8	Attendee	Female	North West London	26.09.16
9	Attendee	Female	Southwest London,	03.09.16
10	Restarter	Male	North London	24.07.16
11	Host of Restart Party	Female	North East London	29.07.16
12	Founders of Restart	Male and Female	Central London	28.09.16
13	WRAP Representative	Male	Central London	30.07.16
14	WRAP Representatives	Male and Female	Banbury, Oxon	12.08.16
15	Waste Officer Hackney council	Female	East London	06.08.16

Appendix 2: Interview guide

Interview guide -with individual repairers in London, UK

The following interview guide served as a framework for open-ended conversations with informants who had participated at a Restart Party.

Personal details

- Name?
- Age?
- Birthplace?
- Childhood - Where did you live?
- What did your parents do for a living?
- Current living place (*Borough*)?
- What is your profession?
- Do you have a partner?
- Do you have children?

London and consumption

- Could you describe a typical day for you? (*Work, time, activities*)
- What do you like about living in London?
- What do you dislike about living in London?
- How do you usually acquire new things?
- How often do you buy new electronic items? (*Special interest in electronics?*)
- How much % of your yearly salary do you usually spend on electronic items?

The Restart Party – the experience

- What is your experience with repairing or being practical in general?
- How and who did you learn from?
- How did you hear about The Restart Project?
- How are you involved? (*Restarter, participant, host, founder, other*)

- What did you bring to the Restart Party?
- Can you tell me about how and when it broke?
- How did you feel when it broke?
- How did you consider your options when it broke? (*Money, time, buying new versus commercial repair*)
- Why did you decide to repair at a Restart Party and not commercially?
- Can you tell me about your experience of attending the Restart Party?
- Can you tell me about how you repaired it?
- How was the process? (*Challenging/frustrating/enjoyable/fun?*)
- How did you find repairing with others?
- Has the topic of repair entered your conversation with friends and family after you attended Restart?
- How did you talk about repair then?
- Has anything else broken since you attended the repairing party?
 - o If Yes: How did you consider the options then?
- What do you see as the main barriers for repairing through community repair?
- How did you find spending time on repairing in comparison to things you normally spend your time on in your daily life?

Reflections concerning consumption and disposal of electronics

- How do you see The Restart Project's initiative? (*Environmental, social, economic*)
- In which ways do you see DIY repairing as important? (*Environmental, social, economic*)
- How do you view people's general consumption of electronics?
- Do you see repair as linked to environmental sustainability? How?
- In which ways are you concerned about electronic waste?
- Do you try and reduce e-waste in other ways than repairing?
- Has attending the Restart Party changed the way you view consumption of electronics?
- How do you see opportunities for commercial repair?

- How do you see the role of the government, and their role in enabling people to repair themselves or commercially?
- How do you see the producers of electronic items?
- Who do you see role of the government versus industries and local communities in targeting challenges related to increases in e-waste?
- Would you want to repair again?
- Would you go to the Restart Party again?

Appendix 3: Letter of Informed Consent / Participants

Request for participation in master thesis on community repair of electronics in the UK

I am a master student at the Centre for Development and Environment (SUM) at the University of Oslo in Norway. My master thesis aims to investigate the growing interest in DIY repair in the United Kingdom, as promoted by The Restart Project.

I will use participant observation and interview 10-15 stakeholders who repair as participants at Restart Parties, or who in other ways hold valuable information on issues related to the practice of repairing electronics. You have been asked to give an interview as I believe you hold relevant information that will be of great benefit to the study.

What does the interview entail?¹⁶

The interview will take approximately 1-1.5 hour, and I will ask questions about your interest, experience and rationale for repairing electronic items. I will also ask questions about your background, current life situation and how you spend your time on a day-to day basis. I will use a voice recorder during the interview to make sure our conversation is recorded accurately. You may ask me to stop the recorder at any time.

It is voluntary to participate in the project, and you can withdraw at any time without stating no further reason. You will remain completely anonymous in the publication. All personal data will be treated confidentially, and deleted after completion June 2016. The study has been notified to the Data Protection Official for Research, Norwegian Social Science Data Services. If you have any questions about the research, please contact me or my supervisor via e-mail. Student- Kaja Ahnfelt: Kaja.ahnfelt@gmail.com.

Supervisor and Head of Research at SUM - Nina Walentyna Maria Witoszek:
n.w.m.witoszek@sum.uio.no

¹⁶ This section was changed in accordance to whom was interviewed (Representatives for WRAP, Hackney Council etc.)

I have received information about the project and I am willing to participate

(Date, signature)

Appendix 4: Activities where I participated and observed

#No	Activity	Location	Organisers	Date
1	Restart Party	East London, London Fields	Restart and Hackney Fixers	11.07.16
2	Restart Party	South London, Tooting	Restart and Transition town tooting	11.07.16
3	Restart Party	East London, Havering	Restart and Havering Council	23.07.16
4	Restart Party	North West London, Harrow	Restart and The Rubbish Diet	24.07.16
5	Restart Party	Birmingham	Restart and The Festival of Code, Young REwired State	02.08.16
6	Restart Party	North London, Kentish town	Restart	11.08.16
7	Restart Party	South London, Brixton	Re-Makery	23.08.16
8	Restart Party	Central London, Kings cross	Restart	08.09.16
9	Restart Skillshare	Central London, Somerset House	Restart	09.09.16
10	Restart Party	West London, Uxbridge	The Rubbish Diet	19.09.16
11	Design talk - Restart, Fairphone and Lovephone	Central London, Somerset House	Restart and the Makerversity	23.09.16
12	Launch event of Fairphone 2	Central London, London Bridge	Fairphone	25.09.16
13	Restart Party	North London, Stoke Newington	Hackney Fixers	26.09.16
14	Restart Party and Teardown of Fairphone 2	Central London, London Bridge	Fairphone	27.09.16

Appendix 5:

Makerspaces, Hackspaces, Workshops visited			
#No	Type	Location	Name
1	Makerspace	East London, Shoreditch	Makers CAFE
2	Maker and Hackerspace	North West London, Wembley	The Create Space
3	Hackerspace	East London, Hoxton	London Hackspace
4	Workshop	South East London, Guildford	The Goodlife Center
5	Workshop	South London, Brixton	ReMakery
Commercial repair and maintenance opportunities visited			
6	Technical Repair and Maintenance	Central London	Knowhow at Curry's PC World
7	Phone Repair and Maintenance	Central London	Geek Squad Curry's PC World
8	Apple Reseller and Repair centres	Central London	iStore
9	Independent	Central London	Lovephone
10	Old fashioned repair shop	Central London	Galaxy repairs
11	Re-use and repair centre	North London, Seven Sisters	Bright Sparks

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