Transforming society through multi-level dynamics

A case of social entrepreneurship in the sanitation sector

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Abstract

Social entrepreneurship and social innovation are expected to take on a growing role in solving global problems of sustainability. However, many social entrepreneurial ventures and social innovations fail to create real change. The aim is to advance knowledge on the social innovation process by examining the dynamics of the multiple actors and levels of context in which a social entrepreneur develops and implements a social innovation. The case of a social entrepreneur in the sanitation sector provides a rich empirical setting for this research. A longitudinal case study was conducted in Kenya and multiple methods were used to collect empirical material.

Drawing on theories from consumer and marketing research and socio-technical transition studies as well as institutional and social network theories, the four distinct research papers constituting this thesis offer multiple perspectives on the social innovation process. Papers I and II show how the beliefs, preferences and values of end-users of a social innovation can be identified. Paper III shows that the different actors, taking part in the social innovation process in the social enterprise, are embedded in different, yet complementary, value logics, which guide the actors' expectations and experiences of social value from the venture. In Paper IV, the focus lies in understanding the practices of different actors, which may enable or resist change in dominant practices, when introducing a social innovation.

This thesis contributes an alternative approach to understanding how social entrepreneurship can lead to transformative societal change. The fields of research and practice in social entrepreneurship may benefit from methods and theories that can account for the multiple actors and levels present in the social innovation process, in order to capture the factors necessary for creating change in deeper structures of society. Narrow, functionalist and economics approaches, may fail in delivering useful information on such complex processes.

Keywords: Social entrepreneurship, social innovation, transformative change, multilevel perspective

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Sammanfattning

Socialt entreprenörskap och social innovation förväntas få en växande roll i att lösa globala hållbarhetsproblem. Dock misslyckas många av dessa att skapa förändring. Målet med denna avhandling är att utvidga kunskapen om den sociala innovationsprocessen i vilken de sociala entreprenörerna engagerar sig för att transformera samhället. I avhandlingen undersöks dynamiken mellan de olika aktörer och nivåer av kontexten där en socialentreprenör utvecklar och implementerar en social innovation. Ett empiriskt fall om en socialentreprenör i sanitetsbranschen bidrar till en rik empirisk inramning för denna forskningsstudie. En longitudinell fallstudie genomfördes i Kenya och olika metoder användes för att samla in empiriskt material.

Genom att använda teorier från konsument- och marknadsföringsforskning, sociotekniska omställningsstudier såväl som institutionell och social nätverksteorier erbjuder de fyra forskningsartiklarna i avhandlingen, olika perspektiv för att förstå delar av den sociala innovationsprocessen. Artikel I och II visar hur övertygelse, preferenser och värderingar hos slutanvändare av en social innovation kan identifieras. Artikel III visar att de olika aktörerna som deltar i den sociala innovationsprocessen i det sociala företaget, är inbäddade i olika, dock komplementära värdelogiker, som styr deras förväntningar och upplevelser av vad som är socialt värde från verksamheten. I artikel IV ligger fokus på att förstå olika aktörers praktiker, som möjliggör eller motverkar förändring i de dominerande tillvägagångssätten, när man introducerar en social innovation.

Avhandlingen bidrar med ett alternativt angreppssätt till att förstå hur socialt entreprenörskap kan leda till förändring. Både forskning och praktik inom socialt entreprenörskap kan gynnas av metoder och teorier som täcker in olika aktörer och nivåer i den sociala innovationsprocessen, i vilken de sociala entreprenörerna engagerar sig. För att förstå hur förändring skapas i samhällets djupare strukturer behövs komplement till smala, funktionalistiska och ekonomiska angreppssätt.

Nyckelord: Socialt entreprenörskap, social innovation, transformativ förändring, multinivåperspektiv

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Dedication

To everyone in Kibera, who set a side time to take part in this research

Contents

List of publications

This thesis is based on the work contained in the following papers, referred to by Roman numerals in the text:

I   Lagerkvist*, C-J., Kokko, S. & Karanja, N. (2014). Health in perspective: framing motivational factors for personal sanitation in urban slums in Nairobi, Kenya, using anchored best-worst scaling. *Journal of Water, Sanitation and Hygiene for Development,* vol. 4(1), pp. 108-119.

II   Kokko*, S. & Lagerkvist, C-J. (2017). Using Zaltman Metaphor Elicitation Technique to Map Beneficiaries' Experiences and Values: A Case Example from the Sanitation Sector. American Journal of Evaluation, vol. 38(2), pp. 205-225.

III Kokko*, S. (2018). Social Entrepreneurship: Creating Social Value When Bridging Holes. *Social Enterprise Journal*, vol. 14(4), pp. 410-428.

IV   Kokko*, S. & Fischer, K. Multilevel perspective on sanitation practice: a case of social innovation (manuscript)

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My contributions to Paper I-IV are as follows:

I   Paper I is based on co-authorship. My main contributions lie in the theoretical positioning, literature review and data collection. I also preformed part of the writing and review process.

II   Paper II is based on co-authorship, where as the leading author I took responsibility for paper development and the review process. My main contributions lie in the theoretical positioning, literature review, data collection, analysis and the writing process.

III   I am sole author if Paper III. I presented draft versions of this paper at the Institute for Small Business and Entrepreneurship (ISBE) Conference in Paris, France, in November 2016, and at the Research in Entrepreneurship and Small Business (RENT) Conference in Lund, Sweden in November 2017.

IV   Paper IV is based on co-authorship, where as the leading author I took responsibility for the overall paper development. I presented a draft of the paper at the Institute for Small Business and Entrepreneurship (ISBE) Conference in Belfast, Northern Ireland in November 2017. My main contributions lie in the idea development, literature review, data collection, analysis and writing process.

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1 Introduction

> Societal and environmental challenges are too pressing and too complex for business and government as usual (Westall, 2007)

It has been suggested that radical innovations are needed to solve many of the current social, economic and environmental challenges (Hegger et al., 2007). This kind of innovation involves entrepreneurial agency that challenges existing structures, rather than adapts to them, to obtain transformative change (Chell, 2000; Westley et al., 2006; Avelino et al., 2017). One such agent of change is the social entrepreneur, who, through entrepreneurial agency, catalyses socially motivated innovation – social innovation (Mair et al., 2006; Richez-Battesti et al., 2012). Both social entrepreneurship and social innovation are gaining momentum in Sweden (Seravalli, 2014; Emilsson, 2015; Gawell et al., 2016; Lindberg & Berg Jansson, 2016; Government of Sweden, 2018), and worldwide (OECD, 2013; European Commission, 2014; Larsson & Palmberg, 2015). This is due to their potential to create sustainable social transformation by mobilising ideas, capacities, resources, and social agreements in different social structures (Alvord et al., 2004, p. 262).

Social entrepreneurship and social innovation are expected to take a growing role in the current quest for sustainable development (Peredo & McLean, 2006; Dawson & Daniel, 2010; Westley et al., 2014; Van der Have & Rubalcaba, 2016; Eischler & Schwarz, 2019). They are seen as a response to narrow economic outlooks on development, the dominant business models, the needs of the Global South, as well as the increased engagement of citizens and non-profit organisations in innovation (Van der Have & Rubalcaba, 2016). They tend to pop-up where both the state and market have failed to meet people's needs (Peredo & Chrisman, 2006; Howaldt & Schwarz, 2010).

During the course of this PhD research project, I have followed a Swedish social enterprise, Peepoople, through a period of growth and high expectations

for creating transformative change, to the organisation's bankruptcy in late 2015. By providing an innovative sanitation solution, the Peepoo-bag, to people lacking access to decent sanitation in the Global South, Peepoople aimed to transform the practice of sanitation. The insights from this longitudinal engagement with the organisation come together in this case study (Yin, 2003), enabling contemplation over the multiple perspectives, methods and levels of analysis that I have used in this empirical study. This has resulted in new insights into the dynamics of multiple actors in the social innovation process – a process that was more complex than it seemed at the start of this PhD project. It also required the inclusion of tools to understand a wider context in which different human factors enable and resist change induced through social innovation. With this study, I provide an alternative approach to the functionalist (Lehner & Kansikas, 2013), economics and rationalist approaches (Dart, 2004) that are frequently used to understand social entrepreneurship and change.

1.1 Background

The norm of development have been market-based, technology driven and top down (Millard, 2014). In parallel to this, current global ecological and social challenges (UN, 2019) have triggered a new development paradigm, sustainable development (Osburg & Schmidpeter, 2013). Over 30 years ago, sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs'' (WCED, 1987, p.41). The challenges of sustainable development are increasingly understood in terms of transformative change, not solely in technology and solutions stemming from natural sciences and technological innovations, but also in consumption patterns and regulation (Smith et al., 2010, p. 439). The shift toward sustainability has thus been claimed to be a cultural or societal challenge (Howaldt & Schwarz, 2010); requiring radical innovation (Hegger et al., 2007; Geels et al., 2008) to transform social structures and practices, involving the revision of values and life-styles (Millard, 2018). These kinds of systemic changes are needed in many areas such as food production, water, sanitation, transport and energy (Hargreaves et al. 2011; Moore et al., 2015).

   As a response, many governments in the Global North have taken an interest in pursuing innovation-driven growth policies which go beyond the traditional technology oriented innovation to include wellbeing aspects of innovation (Lindberg & Berg Jansson, 2016), social innovation, broadly conceptualised as new ways to create and implement social change (Van der Have & Rubalcaba, 2016). What makes these innovations exciting and relevant for the current

challenges faced by society is that they often compete with, and have the potential to take over from, the sometimes unsustainable dominant ways of doing (Beveridge & Guy, 2005; Ormiston & Seymour, 2011; Seyfang & Haxeltine, 2012), meaning they have the potential to transform society.

In the quest for sustainable societal transformation, social entrepreneurs act as disrupters of business as usual. By employing innovative means and entrepreneurial agency they aim to transform social structures and systems (Nicholls & Collavo, 2018) and "generate outcomes that are superior to conventional models through innovation in, and disruption to, the status quo of public, private, and civil society approaches to the provision of social and environmental goods" (ibid, p. 29). Indeed, common to definitions of social entrepreneurship are that the social and/or environmental outcomes are superior to profit maximization and that innovation has a central role either as novel organisational models, processes or products or as novel services. Even new framings or mind-sets of societal challenges have been classified as innovation within social entrepreneurship (Huybrechts & Nicholls, 2012).

1.2 Problem statement

The problem this thesis addresses is the apparent clash between theory and the empirical reality. Theories of social entrepreneurship and social innovation depict these processes as system changing (Alvord et al., 2004; Christensen et al., 2006; Zahra et al., 2009; Dacin et al., 2011; Maclean et al., 2012; Martin & Osberg, 2015). In addition, policy (OECD, 2013; European Commission, 2014; Government of Sweden, 2018) places substantial expectations on social entrepreneurs to transform societies. However, the empirical case in this thesis illustrates how challenging and complex the process of creating change is, leading to failure in this empirical case, as well as in others (Westley et al., 2014). Indeed, some previous studies have criticised the limited ability of social entrepreneurship to create transformative change (e.g. Ganz et al., 2018), and more needs to be known about how and why some social innovations succeed in creating transformative change (Bloom & Chatterji, 2008; Westley et al., 2014).

Academia and practice have tended to resort to market-based approaches and mechanisms to understand the change created by social entrepreneurship (Dees, 1998; Mair & Martí, 2006; Arvidson et al., 2010; European Commission, 2012; Dorado & Ventresca, 2013; Lepoutre et al., 2013; Phillips et al., 2015; Rey-Martí et al., 2016). The systemic and transformative change, which social entrepreneurship is so often associated with, is often understood in terms of impact and social value for the end-users of the solutions provided by social entrepreneurs (Nicholls, 2009; Short et al., 2009; Smith & Stevens, 2010; Greico

et al., 2015; Rawhouser et al., 2019). These complex concepts are frequently reduced to numbers to assess their progress, with market-like feedback mechanisms, which focus on the most direct dimension of the context where the innovation is supposed to have an impact (e.g. end-users or beneficiaries) (Dees, 1998). This is done using methods like counting beneficiaries reached with innovative solutions or the number of replications of social entrepreneurial activity across geographical contexts (Moore et al., 2015), as well as financial and managerial outcomes. These are poor indicators of change in the empirical context of this thesis, since they fail to explain why the seemingly well-functioning and locally appreciated innovation failed to take hold (Paper IV). Some recent studies have highlighted the insufficiency of marketing and diffusion theories to understand the complex supply and demand dynamics of social innovation and how different levels of the wider context impact and are impacted by social innovation in different ways (Westley & Antadze, 2010; Westley et al., 2014; Moore et al., 2015; Phillips et al., 2015). Therefore, it is of relevance to advance knowledge of the social innovation process to understand the complexity of social innovation, by understanding the different actors involved and the relationships between the actors (Matley & Fayolle, 2010).

Even in "conventional" entrepreneurship literature, the narrow (Bjerke & Karlsson, 2013) economic models "explaining outcomes produced from some black box of the entrepreneurial process" (Anderson, 2015, p.150) have been questioned (e.g. Steyaert & Katz, 2004). Positivistic, economic theories based on context-stripped data may fail in explaining the change which entrepreneurship brings about. Understanding the "complex, deeply socially embedded, system of adaptation" (Anderson, 2015, p. 150) which entrepreneurship is, necessitates other theories.

With this contextual background, I suggest that the field of social entrepreneurship may benefit from increased knowledge of the process of social innovation and adjacent entrepreneurial agency that can transform the existing (unsustainable) social structures. Social entrepreneurship literature has shown limited interest in understanding the necessary changes required in rules, resource flows and cultural beliefs, as well as relationships in social structures such as institutions (Moore et al., 2015, p.71) to create change beyond limited local community intervention. The complexity of the transformation process and the challenges social entrepreneurs face may, however, be different, compared to the more conventional commercial goals of purely market-based entrepreneurial ventures and innovations (Dawson & Daniel, 2010; Westley et al., 2014). The field of social entrepreneurship may thus benefit from this study which accounts for the complexity of the context, and multiplicity of actors involved in the social innovation process. The commonly used narrow,

economics and rationalist approaches may not be the most suitable in catering for this complexity.

1.3 Aim and intended contributions

The aim of this thesis is to advance knowledge on the social innovation process, which social entrepreneurs engage in to transform society.

The aim is fulfilled using the following research questions:

1. What are the dynamics of the multiple levels of context, when developing and implementing a social innovation?
2. How can these dynamics be understood and how do they form the social innovation process of creating transformative change?

The four papers making up this PhD thesis offer specific perspectives on the dynamics at play when creating change through social innovation within the frame of social entrepreneurship in the sanitation sector. This research has developed as an iterative process (Srivastava & Hopwood, 2009), in which the specific aims of each individual paper (Table 1) have formed overarching aim of this thesis, its conceptual framework and the concluding analysis and perspectives for the future.

Table 1. *Aims, empirical material and topicality of the four papers*

Paper	Aim	Year of empirical study	Type of empirical material	Topicality in relation to thesis aim
I	To provide an understanding of driving factors for sanitation adoption and use.	2012	Rankings	Method of understanding end-users' preferences
II	To obtain an understanding of the legitimate interests and participants' understanding of a program for sanitation in the school environment.	2012	Mental models	Method for understanding end-users' values and worldviews

III	To examine how social value is created in a social enterprise that brings together multiple institutional logics.	2012-2015	Accounts of social value as representations of institutional logics	Creation of and multiple perspectives on social value from social entrepreneurship
IV	To gain insight into the accommodating and hindering factors for successful change creation from social innovation.	2012-2018	Practices	Interactions between social innovation and the local context in the process of change creation

The increased interest of policy in social entrepreneurship and social innovation as drivers of transformative societal change may benefit from a more nuanced understanding of change, which this thesis provides: understanding it as a complex process rather than a quantifiable outcome. For instance, this process is made up of the interplay of multiple actors, who draw on multiple logics and competing values, at multiple levels (Van der Have & Rubalcaba, 2016). This thesis contributes with insights into the context in which social innovation is introduced by a social entrepreneur to create change and possible resistance to change within the context (Picciotti, 2017). Therefore, it advances knowledge on how and why social innovation provided by social entrepreneurs can succeed in creating change. By providing perspectives from different disciplines, the thesis also responds to calls for multidisciplinary research in the field of social entrepreneurship (e.g. Hlady-Rispal & Servantie, 2018). Moreover, this thesis advances knowledge on social entrepreneurship and social innovation in the context of the Global South, where social innovation is gaining recognition as a bottom-up approach to the design and delivery of public services and is considered important for meeting the United Nations' Sustainable Development Goals by 2030 (Millard, 2018; Eischler & Schwarz, 2019). Research on these kinds of alternative and inclusive innovations is currently dominated by the context of the Global North (Ramos-Mejía et al., 2018). Also, the field of social entrepreneurship has been dominated by the Anglo-Saxon context (Sundin & Tillmar, 2010, Rey-Martí et al., 2016; Dionisio, 2019), although an increasing number of studies on social entrepreneurship with a focus on sustainability are emerging from the Global South (Picciotti, 2017).

1.4 The empirical case and context

A growing number of urban residents live in slums and other informal settlements in the Global South, creating challenges in the provision of basic

services, like safe sanitation (WHO & UNICEF, 2017). This is the context from which the idea of the Peepoo-bag stemmed in 2004, when a Swedish architect visited an informal settlement in Bombay with some architecture students. There he met a women's group, who told him that they did not need help building houses, they had access to water and electricity, but what they needed was toilets. The architect took the problem home with him and started to think about how a modern toilet would work. The starting point was to define the women's expressed sanitation problem in a way that made it possible to design a solution to it. He, together with a family member and a small group of experts from, among others, the Swedish University of Agricultural Sciences (SLU) and the Swedish Royal Institute of Technology (KTH), developed the Peepoo-bag and, in 2006, established a limited liability company, Peepoople AB in Sweden. Peepoople can be classified as a business with a social mission (Gawell, 2015), employing social entrepreneurial action. The Peepoo social innovation received significant attention both in business and sustainable development sectors. For example, in 2009 the initiating architect was elected as an Ashoka fellow[1]. Peepoople started operating in the Kibera informal settlement in Nairobi, Kenya in 2008, as a result of the initiator's personal contacts who happened to know a local pastor in the settlement. Over time, Peepoople expanded to other countries such as Bangladesh and Congo DRC and Peepoo-bags have been used in several locations by humanitarian relief organisations.

The empirical research for this thesis focuses, however, on Peepoople's main site of operations, Kibera. Kibera has a population of approximately 200, 000 (Desgroppes & Taupin, 2011) and is located close to the city centre of Nairobi. Previous research on sanitation in informal settlements has described Kibera as an area which lacks space and has a disorganised layout, making it difficult to build sanitation facilities (Schouten & Mathenge, 2010). In addition, lack of investment in sanitation infrastructure and high poverty levels have led to the extended use of open defecation and shared pit latrines (Isunju et al., 2011). Between 50% and 90% of households in the settlement, do not have access to adequate sanitation, and child mortality rates are among the highest in the world, with 1 in 5 children not surviving beyond 5 years old (Schouten & Mathenge, 2010). Lack of proper sanitation is commonly known as a source of disease, and lack of hygiene can cause the introduction of bacteria into food and drinking water (Petterson & Wikström, 2012).

Sanitation in informal settlements in Sub-Saharan Africa is in general characterised by shared or communal facilities due to the high population

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1 A social entrepreneur, with a system-changing innovation to solve deep-rooted social problems, selected and supported by Ashoka network (Ashoka, 2019).

density, lack of space, high poverty levels and non-feasibility of constructing conventional sewage systems (Jenkins & Scott, 2007; Katukiza et al., 2010; Isunju et al., 2011). Investments in communal sanitation facilities has proven to be an unsustainable solution, not meeting the needs of inhabitants in informal settlements (Joshi et al., 2013). Studies in similar contexts in Kenya (Schouten & Mathenge, 2010), Uganda (Katukiza et al., 2010, Isunju et al., 2011) and Mozambique (Carolini, 2012) indicate that sanitation facilities have higher use frequencies than they are designed for and suffer from a lack of resources for emptying and maintenance. Physical constraints due to dense housing restrict the emptying of facilities or construction new ones (Isunju et al., 2011). In Kibera, sanitation is provided through multiple co-existing sanitation service regimes; 1) domestic sewer toilets; 2) shared on-site toilets provided by landlords; 3) communal shared toilets provided by NGOs and community-based organisations; 4) coping sanitation in the form of open defecation and buckets; and 5) container based dry toilet system, like the case in this thesis. These sanitation regimes operate with rather little coordination between them and constitute a part of the splintered[2] sectoral water and sanitation regime in Nairobi (van Welie et al., 2018).

Through the local office, on the outskirts of Kibera, Peepoople provided local residents with Peepoo-bags, which are biodegradable, one-use toilet bags containing urea, which inactivates and breaks down harmful human faecal pathogens into ammonia and carbonates within 6 weeks, allowing faeces to be safely used as a fertilizer. This bag solution is similar to the commonly used 'flying toilet'[3] in function. When Peepoople started operating in Kibera, the bags were sold in rolls of 25 bags by women micro-entrepreneurs, a strategy used by Peepoople to create trust within the local community and socially embed the toilet solution. Each bag cost three Kenyan shillings (KSh), of which KSh1 was refundable on return of a used bag. The Peepoo-bags were marketed through street show events and plot parties, where the saleswomen and marketing staff together with village elders demonstrated use of the bag and carried out training in personal hygiene. In use, the bag can be thread over a plastic container or a tin can and closed with a knot after use. Bags could then be dropped off at drop points or were collected by women who started micro-businesses collecting used Peepoo-bags. The aim from the start had been to process the used bags into a

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2 Differentiation of basic services and infrastructures in terms of e.g. heterogeneity, spatial unevenness and complexity (van Welie et al., 2018).
3 Polythene bag used for defecation, especially in informal settlements, and disposed of in the near-by environment (drainage, roadsides, rooftops, etc.), often causing an environmental and health hazard when in contact with drinking water supplies or humans.

marketable fertilizer and thereby close the nutrient loop and finance the production of the bags, making operations free from donor funding.

In 2010, Peepoople started cooperating with schools in Kibera. One of the driving ideas behind the Peepoople School Program, was to reach the most vulnerable in society, children, and to increase awareness of sanitation and hygiene, as well as of the Peepoo-bag itself, in the community through the "promotional channel" of children. The School Program grew to cover over 100 schools, reaching more than 18, 000 children in Kibera daily in 2015 (Peepoople, 2016a). Schools saw an incentive to participate in the free School Program, as they often lacked toilets completely and had to pay for the use of public toilets or otherwise had poorly maintained pit-latrines. Donor funding enabled Peepoople to provide Peepoo-bags free of charge to schools, where they were used in cabins with the help of a specially designed holder, Peepoo-Kiti. The cabins also contained urinals, serving as soak pits, and hand washing facilities with soap were provided outside the cabins. Toilet attendants hired by Peepoople especially for the schools with young children and day-care centres, helped children with the proper use of the bag, toilet cabins, and hand washing (Peepoople, 2015a). Peepoo Kids Clubs promoted hygiene and agriculture through competitions and training. Schools and day-care centres involved in the School Program were provided with the toilet cabins required for privacy and with training in hygiene and handwashing. The handwashing and personal hygiene component of the Peepoo- toilet solution was seen by Peepoople as an essential component of the measure to obtain a change in the local community. Older students also received training in life skills, including information about menstruation and sex. Peepoople staff, a mix of young men and women, mainly recruited from Kibera, together with school staff, also familiarised parents with the Peepoo-bag and its possible use as a home toilet. Any used bags not applied as fertilizer in school gardens were collected by Peepoople (Peepoople, 2015a).

The Peepoo-bag became a well-known product in Sweden as well as internationally, with the initiators receiving prizes like the Design S (Design S, 2019) and Änglamarkspriset (COOP, 2019) and the Peepoo-bag was listed on the top innovation list in Sweden several times (NyTeknik, 2013). Some of the key events for Peepoople are listed in Table 2.

Table 2. *Some key events on Peepoople's timeline*

Year	Activity
2006	Peepoople AB is funded in Sweden
2008-2009	Trials in Kibera
2010	Opening of office and production in Kenya
	Peepoo-bag receives Design S prize
	Rolling out of School Programme
2011	Funding to launch project in Kibera 2011-2013
2012	Contract with BASF to deliver biodegradable polymer material
	Launch of high-speed production line in Stockholm
	First trial farms use Peepoo fertilizer
2015	Number of users peaks in Kibera
2015	Closing of office in Stockholm
2016	Peepoople brand is handed over to International Aid Services
	All operations are moved to Nairobi

In November 2015, the Peepoople office in Sweden was closed due to difficulties with financial viability related to drastically decreased donor funding (Peepoople, 2015b). The brand Peepoople and rights to the Peepoo-bag were transferred to a Swedish NGO, International Aid Services (IAS) as a result of earlier cooperation and shared value grounds (Peepoople, 2016b). IAS has now scaled down production and reduced costs by returning to semi-manual production of the bag in Kenya. Currently, bags are delivered to a handful of schools in Kibera and it is no longer possible for individual households to purchase the bag.

The Peepoo-bag can be seen as one possible solution to the global sanitation challenge. Currently, worldwide 2,3 billion people lack basic sanitation and 892 million people practice open defecation. Poor sanitation infrastructure and hygiene increase the risk of sanitation related diseases, and poor health is often associated with the demand for basic sanitation, which motivates investments in sanitation infrastructure. Closely linked to sanitation are the emergent problems of climate change, insecurity, exclusion and inequality, as well as migration (WHO & UNICEF, 2017), indicating that the lack of access to improved sanitation is both a social and environmental challenge.

Owing to their informal nature, the state has historically been, and continues to be, largely absent from sanitation planning and provision in informal settlements. In the absence of the state, NGOs and social entrepreneurs have taken on the responsibility of providing basic services to inhabitants (O'Keefe et al., 2015), for instance in the form of public and container toilets in Kibera (van Welie et al., 2018). The common perception is that sanitation services in the Global South are not profitable and therefore are not fulfilled. The sanitation sector remains underdeveloped and progresses slowly in poor urban areas

globally. Overall, various factors have caused the low investment in sanitation, such as weak institutional and policy frameworks, and a lack of political will due to the low prestige of the sector. Sanitation in these kinds of poor urban areas typically suffers from inadequate and poorly utilised resources, inappropriate approaches and national standards and regulations; and the neglect of end- users' preferences (Norström et al., 2011). These issues can be seen as a failure by the state as a provider of basic services. It is often in these kinds of contexts in which social entrepreneurs see windows of opportunity for innovative solutions (Austin et al., 2006).

There is talk about a paradigm shift in sanitation in Sub-Saharan Africa centring around the idea that value can be created from human waste and can thereby become a revenue generating source where resources are recovered instead of disposed of (Diener et al., 2014). This includes an increased interest from social entrepreneurs, NGO's, international development cooperation and governments in the Global South, for marketbased approaches for sanitation in informal settlements (O'Keefe et al., 2015). The market-based approaches can stimulate designs that aim to improve revenue by making use of human waste, and thus simultaneously have the potential to improve not only health, but also environmental sustainability (Graf et al., 2014). Novel concepts of sanitation can have extensive social and technical implications (Hegger et al., 2007). Presently the existing expensive, large-scale infrastructure investments in sewage systems create path-dependency and come with associated rules, regulations and institutional organisations, which require that alternative sanitation solutions adapt to these already existing structures. New concepts of sanitation need to not only adapt to the existing structures, but also be able to change the sanitation practices of users, suppliers and other related actors in the sanitation sector. Hegger et al. (2007) have suggested that this kind of change will require change at multiple levels, especially in terms of new forms of social organisation in sanitation.

This growing challenge of sanitation service provision, infrastructure and new practices requires more relevant research beyond concrete sustainable solutions. However, only limited research has been conducted on empirical cases of innovative sanitation solutions that aim to solve the sanitation challenge, as, so far, there are only a few innovative decentralised systems that are operated with a market-based approach (Norström et al., 2011), and there are only a few human waste treatment technology implementations in use (Diener et al., 2014).

With this contextual background, the empirical case of Peepoople provides a rich setting for this research. It is an interesting case of social entrepreneurship as a generator of social innovation as it involves both technical innovation to solve a social problem, and social innovation in its ability to improve the quality

and safety of peoples' lives (cf. Pol & Ville, 2009) by rethinking sanitation and hygiene in informal settlements, and valuing human waste as a resource for agriculture. This case can also be considered a key case[4] (Thomas, 2011) of social entrepreneurship due to its focus on social and environmental outcomes over profit-maximisation, the central role of innovation, and the market orientation of the case organisation (Huybrechts & Nicholls, 2012). It is also a key case of social innovation; the Peepoo-bag is a new idea, which improves peoples' lives (Pol & Ville, 2009), with the potential to change social structures in the areas in which it is introduced (Murray et al., 2008). This makes this empirical case instrumental (Stake, 1995) primarily for the field of social entrepreneurship, however the insights are also useful for a multiplicity of actors involved in social innovation.

1.5 Structure of the thesis

I will take you along this research journey by first presenting the conceptual framework for this thesis as a whole, followed by a chapter about the approaches and methods used in each of the four papers which constitute this thesis. I will then present summaries of the four papers with a focus on their theoretical underpinnings. After the paper summaries, I will provide a reflection on how my research process developed across the papers. I will end this thesis with a discussion of the contributions that each paper makes to the overall aim of this thesis, and make suggestions for future research to advance the field of social entrepreneurship by tying it more tightly to social innovation and sustainability transition studies.

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4 "The "key-ness" […] of the case is manifested in its capacity to exemplify the analytical object of the inquiry" (Thomas, 2011, p. 514)

2 Conceptual framework

In this thesis, the social entrepreneur is seen as an agent of change, embodying agency to transform societal systems, in the process of social innovation. Entrepreneurial agency (e.g. Chell, 2000; Anderson, 2000; Jack et al., 2008) is also used to conceptualise the interaction between social entrepreneurs and the structures in which they navigate and which they aim to change. In order to provide an explanation for how societal change may be induced by the social innovation process, a multilevel perspective (Geels, 2004) is used as a working theory.

2.1 Defining social entrepreneurship and social innovation

The concepts of social entrepreneurship and social innovation are often used interchangeably (Westley & Antadze, 2010). Like conventional entrepreneurship, social entrepreneurship as a process can be perceived as a change mechanism (Anderson, 2015; Gaddefors & Anderson, 2017), which, by exploring new ideas and combinations of resources, challenges established structures (Gawell, 2014). Social entrepreneurs are often seen as change agents creating innovation at system level to create social change (Mair & Martí, 2006; Phillips et al., 2015). This indicates that social entrepreneurship is about transforming social systems (Alvord et al., 2004; Christensen et al., 2006; Zahra et al., 2009; Dacin et al., 2011; Maclean et al., 2012; Martin & Osberg, 2015) often on a local scale, but with the potential to change national, regional and even global social systems (Dees, 1998; Martin & Osberg, 2007). The Peepoople case is a good illustration of such entrepreneurial agency. Through an unconventional toilet solution, the Peepoo-bag, a novel business model and a new mind-set on the value of human waste, the organisation's aim was to disrupt the unsustainable status quo of the local sanitation system, which had been

developed and maintained by local service providers and allowed to form by lack of state interference.

The field of social entrepreneurship has been influenced by organisation and management studies, not least through the established field of entrepreneurship (Short et al., 2009; Gawell, 2014), which in turn is influenced by the work of Josef Schumpeter. According to Schumpeter entrepreneurially driven innovation in products and processes is the driver of change processes in society, and entrepreneurial activity encompasses all types of entrepreneurial organising, not only those driven by economic value creation (Howaldt & Hochgerner, 2018), although the economic mind-set has dominated the field of entrepreneurship (Anderson, 2015). Nevertheless, some similarities between social entrepreneurship and "conventional" entrepreneurship can be found, for example, entrepreneurship has been described as intentional development of new practices that create change in society (Hjorth & Steyaert, 2003), i.e. transformative change (Hjorth, 2007). Entrepreneurship can thus be viewed as, at its core, a change mechanism. It unfolds in interaction with other actors (Jack & Anderson, 2002; Gaddefors & Anderson, 2017), and is increasingly depicted as the interplay between the entrepreneurial agent and the context, often understood as structure (Giddens, 1984; Anderson, 2000; Anderson et al., 2012) in which windows of opportunity for (social) entrepreneurial action open, and different factors enable, hinder and shape action.

At the core of social entrepreneurship are social entrepreneurs and social enterprises ranging from private, public and non-profit sectors (Sundin & Tillmar, 2010). Social entrepreneurs can be individuals, networks, groups, organisations, or alliances of organisations (Light, 2006) that act entrepreneurially for a social purpose (Gawell, 2014), seeking sustainable, large-scale change. For the purpose of this thesis, social entrepreneurship is thus defined as the innovative, (social) value creating activity of an actor or a group of actors driven by a social mission, with the aim to create positive transformative change in society.

Innovation can be considered to have a fundamental place in social entrepreneurship (Peredo & McLean, 2006; Weerawardena & Sullivan Mort, 2006; Chell et al., 2010; Friedman & Desivilya, 2010; Perrini et al., 2010). The social innovations provided by social entrepreneurs, may play an important role in introducing new social practices to increase social, environmental and economic sustainability (Asenova & Daminaova, 2018; Millard, 2018), as the empirical example of the Peepoople social enterprise and the social innovation Peepoo exemplify. These kinds of new ideas, the social innovations provided by social entrepreneurs, have been said to set processes in motion for transitions to

a more sustainable pathways for society, and by doing so, they can be a source of new ideas and practices in communities (Westley et al., 2014).

The more "traditional" conceptualisation of innovation often involves new products and processes to expand market shares or to enter new markets, and create incremental development in e.g. devices, materials, products or processes. Traditional innovation studies have tended to focus on the creation of use-value as perceived by users of products and services, as well as exchange value, the money paid to use the innovation (Howaldt & Schwarz, 2010). Like studies in entrepreneurship, these approaches are also based on the works of Schumpeter (Van der Have & Rubalcaba, 2016) in which innovation is seen as creative destruction, a permanent process required for economic development, often reduced to simply technical innovations (Howaldt & Schwarz, 2010). The Peepoople case provides some insights on the creation of a transition among the end-users of the social innovation, by introducing a new mind-set and design of a toilet. However, the case also highlights the need for and challenges to these kinds of new ideas to transcend beyond local markets.

Unlike technological innovation, social innovation involves a shift in views on how innovation can solve problems (Pol & Ville, 2009). This approach to innovation emphasises the social aspect of innovation and suggests new ways of tackling problem solving for the benefit of societal well-being. Social innovation involves more concrete change and focuses on societal development as opposed to solely economic development (Howaldt & Schwarz, 2010). It triggers new configurations of social practices, which happen in groups of different actors in social contexts, this can be seen in Papers III and IV. Understanding change in social practices requires analysis of the social relationships in structures (Howaldt & Schwarz, 2010; Cajaiba-Santana, 2014). By applying such a perspective, we can better understand the processes involved in introducing innovative solutions to socio-technical challenges and social problems, often related to climate, environment and health, encompassing changes in social relationships, systems and structures (Van der Have & Rubalcaba, 2016) including institutions (Pol & Ville, 2009).

In line with the aim of this thesis, focusing on the dynamics of the social innovation process of creating societal change, I use the definition of social innovation used by Mötesplats Social innovation (2019) "new ideas that meet social needs, create social relationships, and form new collaborations. These innovations can be products, services, or models addressing unmet needs more effectively".

In summary, in this thesis, social innovation is treated as an original idea designed and implemented through a social innovation process enacted by a

social entrepreneur to create sustainable transformative change in existing structures.

2.2 Entrepreneurial agency and change

Like "conventional" entrepreneurs, social entrepreneurs must handle dynamic relationships within the social contexts that both produce and form them, and which they aim to change through social innovation. This relationship is extensively discussed through the lens of Gidden's (1984) duality of structure and agency (Nicholls & Cho, 2008). If we consider social entrepreneurs as change agents (Westley et al., 2006), this theory provides the foundation for understanding the social innovation process as a process of change. Entrepreneurship is enacted in contexts which can be understood as structures represented in the social formations of both formal and informal institutions (El-Harbi & Anderson, 2010). These structures accommodate, hinder and shape entrepreneurial action. In entrepreneurial action, entrepreneurs exercise agency to change structures, this is defined as "an attempt to respond to, and thereby change, a set of circumstances […] with a view to creating a desired outcome" (Chell, 2000, p. 71).

Entrepreneurial agency implies a process, which includes the strategies that entrepreneurs undertake to obtain change, which can then be considered the outcome of (successful) entrepreneurial agency (Korsgaard et al., 2016). Agency thus initiates the process of bringing about change in structures (Korsgaard, 2011). This approach places the focus on the actions of actors and their impact rather than the psychology of actors (ibid), which is explored in Paper IV by focusing on practices to understand change. The focus on action, makes entrepreneurial agency a useful concept for understanding change, which is also a networked and social activity rather than purely enacted by an individual (Jack & Anderson, 2002; Gaddefors & Anderson, 2017), this is the focus of Paper III. In this thesis, I use the notion of social innovation process to capture entrepreneurial agency as an action of social entrepreneurs to transform structures. How this process may unfold, can be understood with help of a multilevel perspective. The multilevel perspective serves as a heuristic tool for the examination of the interplay between agents' efforts and the larger context, i.e. structure, which together define the change (Antadze & McGowan, 2017).

2.3 Multilevel perspective on change

All actors are embedded in social and economic (Rip & Kemp, 1998), as well as ecological, structures, which can be understood in more common terms as

problem domains (Westley et al., 2013) or regimes in the multilevel perspective terms (Geels, 2004). The empirical case, which this thesis builds upon, is embedded in the problem domain of sanitation and the structures within. Like other actors, social entrepreneurs have limited room for independent action in relation to the different dimensions of the structures in which they act in terms of regulations, institutions, infrastructure, markets and consumer demand (Smith et al., 2005). These structures have also been understood as socially constructed rule-systems in the multilevel perspective (MLP) on socio-technical transitions (Geels, 2004). The assumption of the interplay between agent and structure (Giddens, 1984) underlie the MLP, which is an increasingly used framework in the field of social innovation (Witkamp et al., 2011; Westley et al., 2014; Van der Have & Rubalcaba, 2016; Westley, 2018). Rooted in socio-technical (sustainability) transition studies, it has been used in novel ways to understand how social innovation interacts with different levels of the systems (consisting of environmental and social trends) in which they are introduced (Westley et al., 2014; Moore et al., 2015). Less used within the field of social entrepreneurship, the MLP may be a useful analytical framework for improving understanding of the dynamics of social innovation processes, which social entrepreneurs engage in, considering that social entrepreneurs aim to change societal structures and systems and often need to engage in multi-actor relationships to do so.

Being a heuristic framework (Geels & Schot, 2010), MLP is a flexible analytical tool (Hargreaves et al., 2011) for understanding the dynamics of change in systems (Geels, 2004). MLP has previously attracted interest from multiple disciplines searching for new pathways for sustainable development, especially in the basic service sectors (Markard et al., 2012; van Welie et al., 2018). The ontological and epistemological foundations of MLP are based on a combination of evolution theory and social construction (Geels, 2010).

A change in a system implies a change in "… resources, material aspects, actors involved in maintaining and changing the system, and the rules and institutions which guide actors' perceptions and activities" of which the system is built (Geels, 2004, p. 898). Elements within the systems are interlinked and interdependent (Finger et al., 2005 in Markard et al., 2012). Changing a system thus requires a set of processes changing the different dimensions of the system (Markard et al., 2012), e.g. the technological, material, organisational, institutional, political, economic, and socio-cultural dimensions (Geels, 2004). If we take the problem domain of sanitation as an example, changes are needed in engineering beliefs in terms of the materials used for sanitation and beliefs about how the sanitation and actors within it are organised, for instance if using market based solutions like Peepoople (Paper III). Other changes can include changes in the institutional beliefs of different actors on what sustainable

sanitation is and how the sector is to develop, what kinds of sanitation solutions policy supports (Paper IV), or what beliefs, values and preferences attached to sanitation dominate in the socio-cultural dimension of the local sanitation system (Papers I-III).

The MLP conceptualises non-linear processes to change these kinds of multi-actor systems as a result of the interplay of developments at three analytical levels: niche, regime and landscape. Niches (sometimes referred to as technological niches) are sites of radical innovations. In these niches, transformative social innovations can emerge through social entrepreneurial action. For example, Peepoople developed the Peepoo-bag as a radical innovation to challenge the socio-technical regime of sanitation, which was the site of established practices and institutions. The landscape level consists of the geographical position of land, climate, available resources, and ''softer'' structures like political constellations, economic cycles, and broad societal trends (Westley et al., 2011, p. 767), including shared cultural beliefs, symbols and values (Geels, 2004, p. 913). Poverty is a landscape level structure affecting the sanitation regime in the empirical case of this thesis. Extreme weather, like flooding caused by increased rainfall, can make sewage and pit latrine based sanitation systems health hazards, or, on the other extreme, drought can cause restrictions in the water in pour–flush sanitation systems. These kinds of events, which create instability in the regime, can be a window of opportunity for radical innovation, like the Peepoo-bag, to take hold at regime level (cf. Geels, 2004).

Social entrepreneurs exercise agency from the niche level, with bottom-up, radical innovations that can trigger systemic change (Westley, 2017) by changing the established structures, i.e. the regimes (Rip & Kemp, 1998). The niche level is portrayed as a protected space where experimentation with innovations can take place (Geels, 2010). Whereas the regime consists of complex intangible and underlying structures of social groups, such as the specific rule-sets or rule-systems, which are shared perceptions, norms, preferences and problem-agendas, and which evolve through social construction (Geels, 2004) and form the routines and policy paradigms as well as investments embedded in the specific institutions and infrastructures. These can create path dependence and resistance to change (Geels, 2011, p. 31). The rule-systems may be the individual's rule or 'personality' systems, or they may be collectively shared systems (Burns & Flam, 1987 in Geels, 2004). They coordinate and structure human activities in the regime and are made up, not only of regulative rules, but also values, beliefs and worldviews (Geels, 2004). To change a regime, these rule-systems need to be changed. In the empirical case of Peepoople, these are explored and explained from the end-users' perspective in Papers I and II. Other actors in the organisational context of the Peepoople venture are included

in Paper III, and in Paper IV we compare the rule-systems (in Paper IV these are understood as practices) of the Peepoo niche innovation and the different dimensions of the regime to see how the rule-systems of the regime enable and resist change introduced by the Peepoo-bag. It is the stabilised structure (i.e. stabilised rule-systems) of the regime, which makes it difficult for social innovations to break through in the existing structures. Radical niche innovations are often perceived as too demanding due to associated changes in cultural values and practices (Smith & Raven, 2012) that may be perceived as inconvenient within existing rule-systems, as shown in Paper IV. However, to create transformative change, the power, routines and beliefs of the structures (social groups with their rule-systems) need to be disrupted (Westley & Antadze, 2010) and disruption can only happen through innovations which challenge the status quo.

In this change creating process of social innovation, from niche to regime, social actors are in the centre, both as parts of a structure and as agents of social change (Geels, 2004, p. 906-907). Social innovations which succeed in competing with the existing regime structures may change that regime and thereby change policy and institutions (Moore et al., 2015). It is the linking of the multiple dynamics at all three levels: niche, regime and landscape, which creates transition or transformation in a system (Geels, 2004). The course of social innovation from niche to regime can be facilitated by developing new markets for the innovation, for instance, through social embedding of the innovation (Paper IV) as well as by creating socio-political legitimacy for early market development and diffusion of the innovation (cf. Geels et al., 2008; Hillman et al., 2018). Legitimation of the innovation in society has been suggested by Witkamp et al. (2011) to play a key role in the development and diffusion of innovations, meaning that innovations may have a political nature, which may define their success in creating transformative change in society. The conflicting and shared values of the actors in the different dimensions of the regime may provide indications of the enabling and resisting factors in the interaction between niche and regime levels in systems transformation. Understanding these factors can provide suggestions for how to stimulate diffusion (Witkamp et al., 2011) of the social innovation. In a similar vein, it becomes necessary to identify sites of controversy, dispute and discord in order to detect the roles played by different actors in the various dimensions of the regime (e.g. science, technology, culture, political, industry and users) touched by the innovation (Beveridge & Guy, 2005). These kinds of social dynamics need to be understood in order to build relationships across different institutions and social arenas to achieve real change (Westley et al., 2014). In Paper IV and in line with previous studies by Westley and Antadze (2010) and Westley et al.

(2014), we suggest that, to create transformative change, social entrepreneurs may need to look beyond consumers and markets, which have traditionally been the focus of business innovation, to include multiple actors and social groups, those which constitute acknowledged areas of institutional life.

MLP may seem a linear process, from niche innovation to the dominant regime and landscape level, understood as levels of structuration of activities (Geels & Schot, 2007), illustrated in Figure 1. However, the transformative change in systems can be understood instead as the interplay of agents (e.g. social entrepreneurs with social innovation) and the structure (the regime made of social groups with specific rule-systems), which together define change (Antadze & McGowen, 2017). This interplay between innovation and the existing regime has been portrayed as a fight resulting in a mismatch with the existing infrastructure, user practices and regulations (Schot & Geels, 2008, p. 2). These relationships have been undertheorized in the past (Blok, 2012 in Gibbs & O'Neill, 2014). However, understanding them may provide indications of why and how some social innovations succeed in creating a transformative change in a system. In the case of Peepoople and the Peepoo innovation, we can see that the mismatch of beliefs and practices between the innovation and the end-users were "managed" rather successfully. This was done by socially embedding the innovation so the existing infrastructure in the regime did not hinder the use of the innovation; however, the mismatch with regulations or, even more so, with policy turned out to be a fundamental challenge to create transformative change in the sanitation regime.

What makes MLP a useful tool for developing improved understanding of the social innovation process, which social entrepreneurs engage in, is the focus on changing practices and institutional structures, i.e. the rules which guide action (Geels, 2004). These concepts are also at the core of how social entrepreneurship (Huybrechts & Nicholls, 2012) and social innovation (Pol & Ville, 2009) have been defined (see section 2.1 for comprehensive definitions). Social entrepreneurs tend to introduce new ideas in the regime they "belong to", which in this thesis is the sanitation sector. In order to create transformative change beyond the micro level of the local community, they need also to create change in the economic, political, legal and cultural dimensions (Westley, 2018) of the regime and, in the long-term, at landscape level.
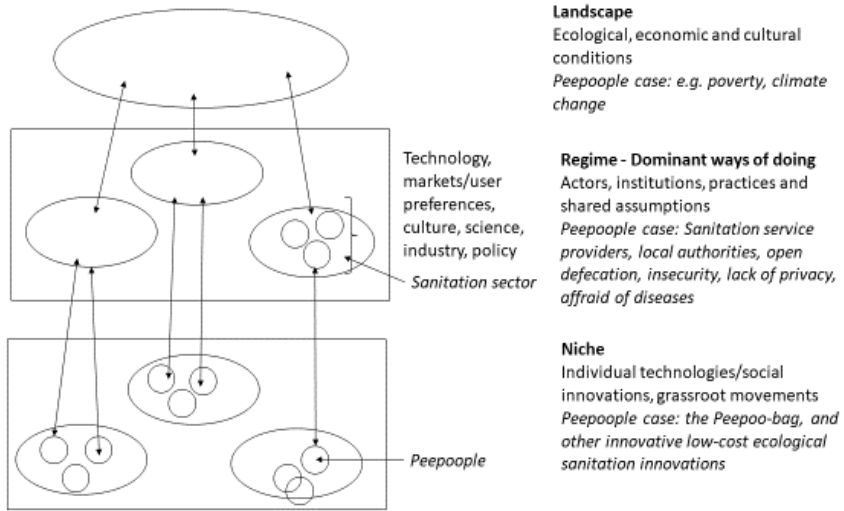
Landscape
Ecological, economic and cultural conditions
Peepoople case: e.g. poverty, climate change

Technology, markets/user preferences, culture, science, industry, policy

Sanitation sector

Regime - Dominant ways of doing
Actors, institutions, practices and shared assumptions
Peepoople case: Sanitation service providers, local authorities, open defecation, insecurity, lack of privacy, affraid of diseases

Niche
Individual technologies/social innovations, grassroot movements
Peepoople case: the Peepoo-bag, and other innovative low-cost ecological sanitation innovations

Peepoople

Figure 1. Multilevel scales of system transformation (adapted from Geels, 2004 and Nykvist & Whitmarsh, 2008)

Moreover, considering that the regime is made up of norms, in terms of not only the market, but also technological, material, organisational, institutional, political, economic, and socio-cultural dimensions (Geels, 2004), changing systems, involves the scaling of social innovation as a more complex endeavour than merely the market diffusion of an innovation (Moore et al., 2015) (Paper IV). In addition, as the impact of social innovation produced by social entrepreneurs is measured by social change rather than in obtaining a competitive economic advantage on the market (Drayton, 2002; Austin, 2006; Chell, 2007), understanding demand for the innovation (Papers I and II) may not be enough to explain the successful adoption of the social innovation and a subsequent societal transformation (Westley et al., 2014). Considering this contextual complexity of transforming systems and of social innovation itself, MLP embraces the complexity of the processes of design, implementation and scaling of innovation, including the factors in the social context, which enable and resist the social innovation process and thereby create transformative change in society.

3 Approach and methods

The overall purpose of research is to produce knowledge by exploring, describing and/or explaining. There are however, differences in opinion in which is the most suitable (Robson, 2011). In this chapter, the different scientific approaches used in the four papers are described, followed by a reflection on the different approaches. An overview of the methodological choices made during the research process is presented, as well as some remarks on the scientific quality of the four studies.

3.1 Ontological and epistemological journey

Scientific knowledge is commonly understood as being grounded in specific assumptions of ontology, epistemology and methodology – also known as paradigms (Guba & Lincoln, 1994). They make up the metaphysics of knowledge, the philosophies of science. In more practical terms, they can function as approaches to how we experience and think about the world (Morgan, 2007). Ontology concerns the form and nature of reality and what is knowable. Epistemology refers to how we can understand reality, whereas methodology is how the inquirer can gain knowledge (Guba & Lincoln, 1994).

3.1.1 Positivism

This PhD project started with influence from the positivist approach. Paper I, the first paper chronologically, is based on naïve realist ontology, where "an apprehensible reality is assumed to exist" (Guba & Lincoln, 1994, p.109). Positivist researchers, and here I use mostly the Popperian view, which is considered to be within the traditional positivist paradigm (Azevedo, 1997), believe that research can provide insight into time and context free generalisations. The epistemological assumption within this approach is that the

inquirer is (or strives to be) objective and neither influences, nor is influenced by, the object of study.

The reductionist or deductionist approach applied by positivists provides a rather mechanistic view of the world and offers a single layered reality (Azevedo, 1997, p. 213, p. 215). In practice, in Paper I, we drew on existing theories from previous research, with the assumption that these theories represented reality in terms of people's motivations to adopt and use sanitation. We added information from discussions with experts to the existing theory in order to develop a theory of motivational factors driving sanitation adoption. We used a quantitative method to show how the hypothesised factors of the Peepoo-bag were ranked by its users. Data for Paper I was obtained through a survey, this was to capture the concrete behaviour of the individual by asking questions in terms of the psychological reactions of the individual, typical with a positivist approach (Azevedo, 1997). We also deduced the data we had collected to draw some explanations from a rather large sample of respondents (Robson, 2011). This large number of individual behaviours thus provided the "truth" of sanitation behaviour applicable to a similar population. We also rigorously followed the procedures of the chosen method to exclude the influence of bias of the respondents or the researcher (Guba & Lincoln, 1994; Robson, 2011). This type of research following the positivist approach attempts to explain or describe with the purpose of prediction and control.

3.1.2 Critical realism

In Paper II, I move on the scale of approaches to critical realism (Bhaskar, 1998; Archer et al., 2016), which implies a critical realist ontology and an epistemology with which the researcher can approximate reality, but not fully know it. The realist ontology assumes that the social world consists of agents, and epistemology assumes that social science relies on the agents' cognitive resources to describe the world. Critical realists are interested in the nature of causation, agency, structure, and relations (Archer et al., 2016). By combining explanation and interpretation, the critical realist approach aims at a historical inquiry "into artefacts, culture, social structures, persons, and what affects human action and interaction" (ibid p. 5). It also embraces multiplicity of perspectives to articulate knowledge depending on different influences and interests, and transformation by human activity (Archer et al., 2016).

In paper II, I focus on the agent's cognitive structures to describe their reality. For instance, both the methods and theory underlying them, ZMET (a means-end value chain approach with laddering technique) are based on the assumption that human cognitive resources react to the world through sensation and thus

create their reality. In other words, the way our mind organises sensations into perceptions. As a result, our experience of the world is not direct but rather constructed by our perceptions (Julnes & Mark, 1998), and is therefore not purely objective or neutral (Manicas, 1998). The hierarchical value maps, which I use to explain the respondents' mental models of sanitation, give a breakdown of the organisation of the individuals' perceptions of sanitation. In this case, it is the constructs of the mind, which determine the choices made by people (Archer (1995) cited in Pawson, 2013). Following the critical realist worldview, we use theory as cognitive support in Paper II, to identify meaningful patterns that may otherwise have been unavailable and, in so doing, guide us toward more adequate understandings (Julnes & Mark, 1998) of the problems studied in the paper. These meaningful patterns, according to Bhaskar (1998), are causal regularities and natural categories (the attributes, consequences and end values in Paper II). Making observations and forming a theory to explain the observations is necessary within critical realism as it allows understanding by matching causal patterns through a combination of deduction and induction, where one starts with inconsistent facts and ends with explanatory hypotheses (Julnes & Mark, 1998), which is also the grounding for ZMET as a method. As opposed to deduction, which is used in Paper I, the research process, in Paper II started with an inductive approach to data collection, by gathering a great deal of information from a few respondents to obtain broader generalisations (the mental models) and ending with some explanatory hypotheses for theory building.

Fundamental to critical realism, as I interpret it, is the explanation of the reality in which events are experienced by people, caused by structures of underlying systems (Mingers, 2000). The purpose thus becomes, not to predict accurately something that will or should occur, but rather to learn about and understand the causal mechanisms in an event (Bhaskar & Lawson, 1998). In Paper II, this can be understood at the micro level of the individual. Action of the individual derives from decision-making, which is influenced by fulfilling personal needs, goals and values. How these values are met can be traced by looking at the causal mechanisms of the attributes, consequences and end values, which make up the mental models, like the structures of the mind.

What I hold from the critical realist approach, although I did not apply it as such in Paper II, is that the social world is multi-layered. It consists of individuals, institutional and societal groups, making it complex. It is, however, the structures and mechanisms, and not the phenomena and events, which should guide the research process (Robson, 2011). It should be understood that it is only ever possible to partly understand "the truth" of what is happening in a situation. This makes studies using critical realist ontology, not only different from the

positivist approach, but also the constructionist paradigm (Guba & Lincoln, 1994).

3.1.3 Social constructionism

Social constructionism challenges the linear, individualistic and descriptive models (Fletcher, 2006) of the positivistic and critical realist approaches and has been stated to be the most ontologically different approach. Social constructionism is based on the ontology of relativism, which means that reality is socially defined, by individuals or groups of individuals, and realities can therefore conflict and change (Guba & Lincoln, 1994). Instead of considering the individual (which is the dominant focus in positivism), social constructionism (similar to critical realism) embraces the whole of human relations and their social context. In contrast to critical realism, social constructionism focuses on the becomingness of social reality. Rather than finding out what is, the result is about the relational processes of things happen, the meaning-making of people (Fletcher, 2006). This said the focus in Papers III is not to understand the specific meaning making between individuals, but rather on how the different meanings (made by people in interactions) create social value.

When starting to write Paper III, I consciously chose a social constructionist approach following the theorisation by the phenomenologists Berger and Luckmann (1966). In the empirical material collected over the various visits to the study site as well as from interviews with other actors involved in the case organisation, I saw different accounts of how social value was expected to materialise and how it was experienced, I needed a theory, which could explain theses differing perspectives. Social constructionism seemed liked a workable approach.

According to social constructionists, reality is part of an intersubjective (Fletcher, 2006) world which is shared with others, through interaction and communication. The communication between peoples' subjective meanings forms a common world where people share a view of its reality. Social construction of reality is therefore a shared process and a negotiation of understanding between people to create meaning. This reality has been suggested to be about everyday life and consists of thoughts and actions (Berger & Luckmann, 1966). What is included in and excluded from conceptual categories and how, like social value in the empirical case in Paper III, may vary depending on which group you ask (Berger & Luckmann, 1966) as also the empirical case exemplified. When developing Paper III, I found the theory of institutional logics (Thornton & Ocasio, 2008; Greenwood et al., 2011) useful,

as it depicted the shared meaning making of value between individuals and at interpersonal levels (Fletcher, 2006). The theory of institutional logics is well-embedded within social constructionism: institutional logics can for example be defined as "socially constructed, historical patterns of cultural symbols and material practices, assumptions, values and beliefs by which individuals produce and reproduce their material subsistence, organise time and space, and provide meaning to their daily activity" (Thornton et al., 2012, p. 51). Similarly, Jones et al. (2013) describe institutional logics to be contextual and translated by their members in the specific time and place, and theoretically, they elaborate a structural theory of culture by focusing on the patterns of and interplay among symbols, beliefs, norms, and practices.

By identifying the different socially constructed institutional logics of value, I could distinguish the actors as members of specific social groups that are made up of typifications of habitualised actions of the actors and the typicality of the actors themselves (Berger & Luckmann, 1966). I portray these groups as strong tie networks. By analysing the relations between the groups and the case organisation, I use the concepts of strong and weak ties (Granovetter, 1973) and structural holes (Burt, 1992) to explain the relationships between the different institutional logics and how social values are create in the Peepoople venture.

In Paper IV, I use the MLP on sustainability transitions (Geels, 2004), which is also based on a social constructionist approach, together with practice theory, to understand the apparent failure of the Peepoo-bag. The MLP is based on Giddens' (1984) approach to structuration (Geels, 2004, 2010), which is a relativist and intersubjective approach to understanding reality. Practice theory has been postulated to be a "processual, material, constructive, bottom-up post-humanist approach" (Nicolini, 2017, p. 20). It indicates a relativist ontology, however some, such as Reckwitz (2002), go further, saying that it is neither inter-relational nor textual (developed in discourses and texts), but simply, about regarding "agents as carriers of routinised, over subjective complexes of bodily movements, of forms of interpreting, knowing how, and wanting, and of the usage of things" Reckwitz, 2002, p. 259).

3.2 Research design(s)

The four papers are united by the same empirical case, the Peepoople social enterprise. Following the epistemological and ontological turns during the time that this thesis was written, different research designs have been used in the four papers. Paper I is a quantitative paper, stripped from context. It is theoretically rigorous, but only relevant to similar stripped situations (cf. Guba & Lincoln, 1994), making it substantially different from the three other papers. In Paper II,

the empirical material was collected through qualitative means; however, the results were quantified and aggregated to make generalisations. Papers III and IV are rather typical case studies (cf. Yin, 1994) where qualitative methods were used to gain an in-depth understanding of the issue at hand and to obtain a more contextualised picture of the case. They thereby provide richer pictures of human behaviour. Research designs for the papers are presented in the following sections.

3.2.1 Selecting the case organisation

In 2012 when I started this PhD research project, the case organisation, Peepoople, was a rather typical case of social entrepreneurship in regards to its mission and operations (cf. Huybrechts & Nicholls, 2012). It represented a key case (Thomas, 2011) and could be used as an instrumental case (Stake, 1995) to illustrate both the complexity of problems solved by social entrepreneurs as well as the multiplicity of actors affecting and being affected by the entrepreneurial activity, i.e. an illustration of the contextual complexity in which social entrepreneurship is enacted. The Swedish University of Agricultural Sciences, where I have carried out my PhD, had previous connections to the organisation and there was a mutual interest in learning from each other, making it useful for me and the Peepoople organisation to co-operate in this research.

3.2.2 Sampling

A sample is defined as the "segment of the population that is selected for investigation" (Bryman, 2012, p.187). Purposive sampling, based on the relevance of the sample to the research questions (Patton, 2002; Robson, 2011; Bryman, 2012), was used in all four papers making up this thesis. As my aim has been to understand those closest to the case organisation and the phenomena of transformative change though the introduction of the Peepoo-bag social innovation, randomised samples, which would have enabled generalisations to the whole population of Kibera or Kenya, was not necessary nor appropriate.

3.2.3 Units of analysis

The unit of analysis is, in general terms, the issue under study (Yin, 1994). Following the progression of this thesis, the units of analysis have changed from understanding the individual preferences in Paper I and components of hierarchical value chains in Paper II, to relationships between human actors and their logics in a network and practices respectively in Papers III and IV (Table 5).

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3.3 Empirical material

3.3.1 Survey

In Paper I, a closed-ended questionnaire in the form of a paper and pen survey was conducted to obtain a ranking of individuals' assessment of the importance of motivational factors in regards to the Peepoo-bag. A theory-driven preference scaling procedure (Marley & Louviere, 2005), best-worst Scaling (BWS), commonly used in health treatment (Flynn et al., 2007) and social care (Potoglou et al., 2011) was used to do this. Without going into specificities of the technique here (a detailed description is presented in Paper I), some points on the use of survey as research method should be looked at. Surveys are non-experimental fixed designs, commonly used in marketing and consumer research to obtain large amounts of quantitative data (Robson, 2011). This technique is instrumental and aims at an unbiased assessment of what is being measured. Due to the survey's descriptive nature, it is less exploratory. It can, however, provide information as supportive evidence for the operation of mechanisms (Robson, 2011). Measuring relationships between variables, such as correlations, is common in most research which uses surveys, and requires statistical and/or logical techniques for analysis, as was done in Paper I. The research questions are typically specified prior to data collection and the design is followed throughout the study. Although we do not state specific research questions in Paper I, the underlying and specific question to be answered by the study was how users of the Peepoo-bag ordered/ranked the different motivational factors of the Peepoo-bag with regard to their importance for the individual.

3.3.2 Zaltman Metaphor Elicitation Technique

The hybrid, qualitative and quantitative approach, Zaltman Metaphor Elicitation Technique, was used in Paper II to understand local mental models of sanitation and children's well-being. ZMET was originally developed to understand people's mental models for marketing (Zaltman & Coulter, 1995; Zaltman, 1997) and for strategic management purposes. The empirical material is gathered qualitatively through in-depth interviews, and then coded for quantitative analysis. Consumer and marketing research has long developed methods to understand consumers' decision-making and how products and services are perceived as relevant from the perspective of the consumer (Christensen & Olson, 2002). The concept of mental models involves understanding the cognitive structures that influence things like consumer behaviour. These structures include attitudes, emotions and feelings, actions, symbols, goals,

personal values, images, memories of past events, anticipated events, and sensory images (Christensen & Olson, 2002). Underpinning the technique is the idea that every day reasoning is based on causal relationships created in the mind as metaphors (Lakoff & Johnson, 1980) and can be verbally expressed with the help of image-based elicitation (Zaltman, 1995).

Participant-generated data, in form of images, is used in an inductive way, as entry points for exploring the content and structure of a mental model. Based on grounded theory (Zaltman & Coulter, 1995), ZMET adopts Means-End Chain theory (Gutman, 1982) and the laddering technique (Reynolds & Gutman, 1998) to map cognitive structures from mental models. As a cognitive methodological approach, laddering is suitable for bringing out people's goals and values, whereas the Mean-End chain theory is based on the assumption that activities or product attributes (means) have links to consequences for the consumers, and personal values (ends) that are reinforced by the direct or indirect consequences the attribute provides. ZMET provides a structured way of collecting rich, open-ended data, which, through analysis, is aggregated into mental maps.

3.3.3 Case study

A case study design was used in Papers III, and IV. Case study is a common approach in qualitative business studies (Eisenhardt, 1989; Yin, 2008; Robson, 2011) and is used to address explorative questions (Stake, 1995; Yin, 2008; Robson, 2011). Case study is a flexible research design, meaning that the design of the study may evolve throughout the process, incorporating multiple perspectives. The researcher is the instrument of data collection and the focus is often on the participants' views (Robson, 2011). I used the case study design to incorporate a multiplicity of methods for collecting empirical material (Table 4), which I found beneficial for obtaining a holistic view of the topic studied in Papers III and IV, as well as for the triangulation of the findings.

The case study approach is also flexible. It can be guided by different ontological and epistemological beliefs and can be set up in different ways. Positivistic approaches to case study have an interest in generalising to populations, e.g. firms from multiple case studies (e.g. Eisenhardt, 1989; Yin, 2008). Whereas more social constructionist approaches aim to understand and learn from a specific case (Johansson, 2000) by understanding its complexity and embeddedness in its context i.e. its uniqueness (Stake, 1995), or its typicality or relevance as an instrument to understand a specific issue, as has been done in Papers III and IV. Despite focus on one case, the case study approach allows for generalisation, not always to populations, but rather in terms of theory by making sense of people or situations and how the case may help explain other similar

people or situations (Maxwell, 1992). This implies that it is possible to transfer concepts, patterns, and theories generated from a specific case to other similar cases (Norrman, 1970). My aim in the case studies carried out in Papers III and IV has been to get close to the real-world phenomena in question in each paper and depict its operation in a current social and natural context (Yin, 2008). In this sense, case studies enable rich contextual description essential for understanding (Lincoln & Guba, 1985). An overview of the nature of the main empirical material and the methods used for collecting it for each paper is summarised in Table 3.

Table 3. *An overview of main empirical material in Papers I - IV*

	Paper I	**Paper II**	**Paper III**	**Paper IV**
Method	Questionnaire	In-depth interviews	In-depth interviews, observation	In-depth interviews, observation, document analysis
Sample	People using the Peepoo-bag	Parents to children both using and not using the Peepoo-bag in schools	Key stakeholders involved in the Peepoople-venture	Key stakeholders in the Peepoople-venture and in its intimate context
Type of Material	Quantitative	Qualitative	Qualitative	Qualitative

All interviews, conversations and focus group discussions were conducted in either Swedish, English or Swahili, and when necessary translated into English prior to analysis. In Table 4. the entirety of the empirical material is presented.

Table 4. *The entirety of the empirical material used in this thesis*

Data collection method	Participants	Time of collection	Empirical material collected	Documentation
Focus group	7 women	February 2012	Ranking of attributes of the Peepoo-bag Free discussion about the bag	Notes
Focus group	10 women	February 2012	Association mapping What do users associate Peepoo with?	Post-it Notes
Focus group	9 men	February 2012	Association mapping What do users associate Peepoo with?	Post-it Notes
Survey	32 men and 92 women	February 2012	Best-worst scaling exercise to rank motivational factors for using Peepoo	Questionnaires
Group interviews with children	1 school using Peepoo-bags in Kibera and 2 schools not using Peepoo-bags in Kibera	August 2012	Children's perception on school toilets and sanitation	Notes

Data collection method	Participants	Time of collection	Empirical material collected	Documentation
Outcomes workshop	12 mothers, teachers, village elder and neighbours with experience of Peepoo-bag use in schools	August 2012	What has changed since Peepoople was introduced at school?	White board papers Pictures Recording
Individual interviews	1 Village elder 2 Heads of schools 3 NGO representatives (2 different NGOs)	August 2012	Perceptions on sanitation and children's well-being	Notes Recordings Atlas.ti
Individual Cognitive Mapping of sanitation linkages	Experts (Village elders, mothers, teachers, NGO representatives)	August 2012	How different aspects of sanitation are linked to each other and strength of the links	Notes Atlas.ti
Stakeholder mapping workshop	Peepoo employees	August 2012	Identification and mapping of the most important stakeholders	White board paper
Most Significant Change stories (individual semi-structured interviews)	42 stories from school staff and parents with experience of Peepoo in schools	2012-2014	Short descriptions of what changes stakeholders have experienced and why this change has come about, since Peepoo was introduced in schools	Filled in interview templates Atlas.ti

Data collection method	Participants	Time of collection	Empirical material collected	Documentation
Zaltman Metaphor Elicitation Technique	15 Parents	August 2012	In-depth interviews with 15 parents, with and without experience of Peepoo. Topic: how parents understand school sanitation and children's well-being	Recordings Pictures Atlas.ti
Group interviews with children	Children from trial schools	February 2014	What children think about school toilets (Peepoo and without)	Likert scales
In-depth interviews	Social entrepreneur, funder, local manager of Peepoople Kenya, researcher	October 2015	Collaborations Process Value of Peepoople	Recordings Transcriptions Notes
Interviews and informal discussions	Five former employees at Peepoople Sweden and one former employee at Peepoople Kenya	January 2018 Nairobi	History of the Peepoople venture, motivations for different actions, and the reasons behind the closing of the Peepoople organisations in Sweden and Kenya	Transcriptions Notes
Interviews and informal discussions	One Swedish and four Kenyan staff members at International Aid Services (IAS)	January-February 2018 Nairobi	IAS plans for the Peepoo bag. IAS employees' perceptions and expectations of a functional sanitation and fertilizer solution	Notes

Data collection method	Participants	Time of collection	Empirical material collected	Documentation
Interviews and observation	Managers of three schools and 2 school attendants who help children with the use of Peepoo-solution	January 2018 Nairobi	Information on how schools use Peepoo, and the school managers' and attendants' experiences of the Peepoo-bag	Notes
Stakeholder meeting	31 participants representing NGOs active in Kibera working with sanitation, city and county government officials, and researchers from Sweden and The University of Nairobi.	January 2018 Nairobi	Discussions on how to make Kibera open defecation free. Presentations from researchers and NGOs on current knowledge on different aspects of the Peepoo bags. Presentations about other sanitation solutions for Kibera	PPpresentations Notes
Interviews and observation	10 farmers who had used Peepoo-bags as fertilizer at least once between 2014 and 2017. Farm visits	February 2018 Kirinyaga	Knowledge about the product and its origin, experiences with its use as fertilizer	Photos Notes
Content analysis	Kenya Environmental Sanitation and Hygiene Policy 2007-2015 Kenya Environmental Sanitation and Hygiene Policy 2016 – 2030	May 2018	Identification of elements of practice; materials, activities, knowledge and meaning related to the Kenyan state's desired solutions for sanitation	Notes

3.4 Data analysis

I employed different analytical frameworks and tools to analyse the empirical material in the different papers. These include methods from the field of consumer decision-making, best-worst scaling for eliciting preferences and understanding the choice behaviour of users (Paper I) and means-end chain analysis to uncover the underlying emotions, consequences, and personal values that drive consumer choice (Paper II). In papers III and IV a constant comparative method was used to identify patterns and concepts in the empirical material and as a means to support conceptual reasoning in the papers. The data analysis methods and tools are briefly presented below in Table 5 and elaborated upon in each of the papers.

Table 5. *Analytical methods used in papers I-IV*

	Paper I	**Paper II**	**Paper III**	**Paper IV**
Unit of observation	Individual users of the Peepoo-bag	Parents to children using and not using Peepoo-bags in schools	Different stakeholders involved in the Peepoole venture	Different stakeholders involved in the Peepoole venture and policy texts
Unit of analysis	Individuals' preferences	Components of the aggregated mental models	Network relationships and institutional logics as meaning making	Practices (material, activities, knowledge and meaning)
Analytical method	Best-worst scaling	Means-end chain analysis, hierarchical value map	Detection of patterns and themes, abduction	Detection of patterns and themes
Analytical tool	Hierarchical Bayesian model, MaxDiff software	MECanalyst Plus software	Paper and pen, Atlas.ti	Paper and pen, tables

| **Main reference(s)** | Marley and Louviere (2005) | Glaser and Strauss (1967)

Reynolds and Gutman (1988), Zaltman (1997) | Eisenhardt (1989), Dubois and Gadde (2002), Patton (2002) | Patton (2002) |

The focus in Paper I was to find the driving factors for sanitation adoption and use. The analysis of the data collected through the survey was done using best–worst scaling (BWS), a theory-driven preference scaling procedure (Marley & Louviere, 2005). BWS is based on the assumption that all motivational factors can be ordered transitively (from most to least important), BWS is an extension of paired comparison. A BWS study is based on an experimental design which generates choice sets containing the motivational factors (27 factors were used in Paper I) chosen for the study. The analysis of BWS data generates individual estimates of the probability that a given factor is chosen as most important relative to a single reference factor. However, the relativism of BWS means that the degree of factor importance is only comparable for a single respondent, but not across respondents (Lagerkvist et al., 2012). The computational analysis of the best-worst data was conducted with the help of Bayesian hierarchical modelling, which creates a ranking of the order of preference, or importance of different attributes of the Peepoo-bag considered as motivational factors. Bayesian methods are based on the assumption that probability is operationalised as a degree of belief, and not a frequency, as is done in classical, or frequentist, statistics (Allenby et al., 2005, p.7). This method enables an analysis of information on each individual's assessment of the importance of the motivational factors, thereby enhancing understandings of consumer behaviour and its correlations, by understanding the distribution of responses among respondents (Allenby et al., 2005).

For Paper II, all the transcribed interviews were open coded following Glaser and Strauss' (1967) grounded theory generation procedure. We then developed thematic categories and abstracted all conceptual metaphors to these categories. We used Atlas.ti, a qualitative data organisation software, to organise coding and categorisation. Five randomly selected interviews were also coded independently by another coder and compared with my coding to avoid any bias in the coding process and to maintain the integrity of the meaning of the interviews, as suggested by Sugai (2005). The data from the construct elicitation part of the ZMET exercise was then further aggregated with the help of the

MECanalyst Plus software to obtain associations between concepts and causality. The aggregated data is presented in the form of a consensus map, where the most important (i.e. the most frequently elicited) constructs and connections are shown. Constructs gathered through the other ZMET steps were used to obtain a more comprehensive understandings of the aggregated maps.

The analyses in Paper III and Paper IV are devoted to understanding a range of perspectives beyond the end-users of the Peepoo-bag, and the possible interactions of different actors involved in the value creation and change-making activity of Peepoople. Content analysis of the empirical material was carried out to identify and categorise the main patterns and themes (Patton, 2002) to understand what was happening in the case. Interview transcripts, field notes, and documents were sorted into Atlas.ti, coded and categorised, when it was deemed necessary to resort to computer aided organisation of data. The analysis of empirical material in papers III and IV was a process of constant interplay between theory and empirical material in an abductive manner (Dubois & Gadde, 2002). Abduction implies that the original framework is successively modified, partly due to unanticipated empirical findings, but also of theoretical insights gained during the process (Dubois & Gadde 2002, p. 559). For instance, when analysing the content of the empirical material in Paper III and comparing and contrasting patterns in the material, themes, categories and concepts emerged (e.g. logics and social networks of weak and strong ties). These were then compared to theory to find a suitable fit. In Paper IV, the abductive reasoning was first used for the conceptual development of how social innovation might solve sustainability challenges, through insights obtained from the empirical case, and how social innovation could be positioned in the sustainability transitions framework. Then, practice theory was added to operationalise the concept of creating transition in a system and for facilitating the identification of relevant factors in the empirical material.

3.5 Research quality

It is important to examine the credibility and truthfulness of the papers in this thesis, especially as they belong to different approaches to science with resulting understandings of how knowledge is (or should be) produced. Two different sets of quality criteria are needed for the different papers.

3.5.1 Quality of quantitative study

Quality criteria to establish trustworthiness of the study in Paper I, follows the well-established criteria for quantitative research of internal and external validity and reliability (Campbell & Stanley, 1963; Cook & Campbell, 1979; Lincoln & Guba, 1985), following the positivistic research approach. Validity refers to the strength of the conclusions drawn from the study (Cook & Campbell, 1979). In Paper I, internal validity (Campbell & Stanley, 1963; Cook & Campbell, 1979) was tested through a short face validity test with a small group of respondents, who reported the content and presentation of the motivational factors to be comprehensible. In addition, to avoid respondents not understanding the task, before administering the ABWS survey, a short exercise was carried out to allow the respondents to understand the technique for choosing the most and least important attributes of the Peepoo-bag from a set of choices.

External validity concerns the generalisability of the results and is often related to statistical analysis. Generalisations are made to the context, population, geographical area, treatment variables and measurement variables. In Paper I, the estimated standard deviation of 8.4 (coefficient of variation (CV) ¼ 0.17) indicates relatively low levels of heterogeneity in the sample in terms of importance placed on motivational factors. This means that the results could be generalised to a population sample similar in characteristics and context and similar in products.

Reliability refers to the consistency of the measurements (Campbell & Stanley, 1963; Cook & Campbell, 1979) thus also regards the accuracy of the measurement instrument. In Paper I, reliability was checked by using the average percentage certainty (APC) measure (cf. Hauser, 1978), obtained as the difference between the log likelihood of each model and the log likelihood of a chance model, to assess model fit. In addition, a chance ratio measure, defined as APC divided by the predictive power of a chance model, was used to compare the predictive accuracy between model specifications with and without covariates for the segmentation of sub-samples of respondents. In this study, the chance model had a predictive power of 16.7% (one out of six choice options). The estimated ABWS model had an average percentage of 47%, suggesting that the ABWS model had a predictive accuracy that was 2.82 times higher than that of a pure chance model.

3.3.2. Quality of qualitative studies

The quality criteria used in Paper I, was less relevant for Papers II-IV, and have been criticised for their inappropriateness for evaluating the quality of

qualitative research (cf. Lincoln & Guba, 1985). Reliability as applied to qualitative studies was sought through detailed descriptions in each paper of how the empirical material was collected and analysed. Also, by using different data collection methods (i.e. triangulation) the weaknesses of one method could be compensated for by another method (Lincoln & Guba, 1985). In terms of validity, some words can be said based on Maxwell (1992) quality criteria for qualitative research in which the focus is on validity, i.e. trustworthiness, in the process of describing, interpreting and explaining the phenomena of interest.

Descriptive validity refers to how accurate the accounts are (Maxwell, 1992). To stay true to the accounts of the participants, the interviews were recorded when possible, extensive notes were taken, and the interviews were transcribed for analysis. The aim in Papers II-IV was to generate thick description (Denzin, 1989) and to describe the context and the themes in detail.

The second criterion, interpretive validity, refers to capturing what the participants mean. The thick description including quotations from participants are included in Paper III to emphasise the power of the empirical material and highlight the different perspectives of different participants. Thick description aims to provide an opportunity for the reader to see how the analysis has been developed and to judge the credibility of the findings and their applicability in other settings (Creswell & Miller, 2000). A major advantage during the research period 2012-2018, was that I could work with the same local staff from Peepoople in Kenya and from the University of Nairobi. The long-term collaboration made communication easy between us, as well as when communicating with respondents, as we had got to know each other, and the Peepoople staff who often facilitated different research activities and acted as interpreters became familiar with my research. I also consider my background of research in similar cultural setting as helpful when conducting this PhD research project. It has provided me with the sensitivity to context and contextual understanding required to analyse the empirical material. However, not knowing Swahili and having to rely on interpreters has obviously limited the depth of understanding of the stories told by those interviewed in Kenya, as well as the nuances and feelings or hidden messages.

In regards to theoretical validity, which concerns the abstraction of the empirical material to theory development, in Papers II-IV, accounts are provided, which go beyond the immediate perspectives and experiences of the participants. The accounts are made of the concepts and relationships, which explain the studied phenomena (Maxwell, 1992). For instance, when developing Paper III, I reflected on whether the different expectations and experiences of value count as different institutional logics. Alternatively, was the theory of

institutional logic appropriate to explain the differing understandings of value articulated by the participants?

One aspect, which underlies Maxwell's (1992) quality criterion, is reflexivity. Self-reflexivity refers to the researchers' awareness of his or her influence on the empirical material. Considering that I was the main instrument for collecting empirical material, for papers II-IV, my skills, training, and experience played an important role in terms of the quality of the research (Patton, 2002). My background in development cooperation and business, experience in Sub-Saharan Africa, and interest in the empirical case, have undoubtably impacted the production of empirical material, and the way cases have been described and interpreted (Alvesson & Sköldberg, 2000). Although I was an outsider to Peepoople and, even more so, the local context in Kenya, it was rather easy for me to merge into the empirical setting, network with local actors and start discussions. I had conducted qualitative research with farmers, representatives from the public sector and researchers in Burkina Faso during my Masters' degree, an experience that was very useful in the Kenyan setting. Contacting local households was, nonetheless, facilitated by staff from Peepoople. Being a western researcher and a young woman have also certainly influenced the research situation. There may have been hopes within the local community that I, from the Global North, could be an enabler of donations or other charity benefits directly to the households involved in the different studies, or to the schools from which I interviewed parents, children and staff. This sometimes created tension during interviews, as I did not meet initial expectations (e.g. for financial support). I often had to remind participants that I was asking the questions for a research project and that it would not necessarily lead to any development project or work opportunities for the participants. Being a young woman may have resulted in me not being taken seriously or given the same level of importance as a man, especially within more formal settings. Although I have experienced this when working with government officials in other African countries, in Kenya, I did not notice being treated patronisingly. Being a woman has, however, likely eased communication with women and children – who make up the majority of the sources of empirical material for this PhD research project. Children were very curious about me and were not shy of answering questions, and I experienced that women did not feel embarrassed when talking about their children's sanitation situation and well-being. I was also invited to some homes to conduct interviews.

3.6 Reflection

In 2012, I was recruited to the Department of Economics at the Swedish University of Agricultural Sciences. My PhD education was funded by the Department of Economics, setting me on a rather open and independent journey. I began the research process strongly influenced by my educational and professional background in environmental sciences, management and the business of development aid. In early 2012, I was introduced by a previous supervisor to staff at the Peepoople office in Sweden and travelled to Kenya for my first study of the Peepoo-bag (Paper I). I found the Peepoo-bag to be an exciting and exemplary case of social innovation to solve an important human need, that of access to safe sanitation, as well as the environmental challenge of what to do with hazardous human waste. In many ways, the case exemplified the rethinking of sanitation, waste management and ways of organising to deliver a basic service to improve peoples' lives.

During the seven years of this PhD project, I have had the opportunity to follow Peepoople across a period of growth and high expectation for the innovation to create change, ambitious plans for scaling (geographically), as well as the closing of offices in Stockholm and Kenya and scaling down of operations worldwide. This longitudinal engagement with the case has triggered new perspectives on social entrepreneurship and change. The extended time with the case also formed my research process. My interest in stimulating positive change, first in the local community and, later, in systemic changes has been the driving force throughout this thesis. I started this journey with an interest in measuring the impact of Peepoople on the local community. My focus was on the individual, much in line with many contemporary development interventions, which aim at changing individual behaviour in order to achieve social and/or environmental improvement (World Bank, 2015). However, individual behaviour change may not be enough to explain or create successful social innovations through social entrepreneurship, when understood as creating transformative change beyond local impact. In the two latter studies in this thesis, I suggest a more complete picture of the social innovation process that social entrepreneurs may engage in can be obtained by including different dimensions of the social context. By doing so, more nuanced pictures of what creation of transformative change may entail can be created.

Looking back, I have confronted the theoretical and empirical problems rather pragmatically. For Papers I, II and IV, I have retroactively reflected upon the different scientific approaches and tried to classify the papers accordingly. This process of finding workable approaches (with their theories and methods) leads to a possible future research agenda, which is elaborated on more at the

end of this thesis. Together the studies provide different, but complementary understandings of the case. I suggest that complex issues, like those solved by social entrepreneurs (Jankel, 2011), and which necessitate transformative change, may need multiple ontologies and epistemologies and therefore theories and methods to provide a more comprehensive picture. Perhaps looking for what works to explain what needs to be explained and learning from the interactions between ontologies (see Gioia & Pitre, 1990) can provide more complete understandings of not only phenomena and events, but also structures and mechanisms (Elder-Vass, 2012; Archer et al., 2016), and predictions and probabilities of events and experiences. These kinds of crossovers can allow space for differences in ontologies while emphasising the interplay of the ontologies rather than giving all-encompassing combinations of different ontologies (cf. Geels, 2010). This multiplicity necessitates different units of analysis, which may be a fruitful endeavour in understanding the social innovation process, which social entrepreneurs engage in to create sustainable societal change. This will be elaborated on more in the discussion and concluding remarks in Chapter 5.

4 Empirical studies

In this chapter, summaries of the four papers are presented, with a focus on the theoretical underpinnings. A reflection is also provided on the research process as it progressed.

4.1 Paper I

Health in perspective: framing motivational factors for personal sanitation in urban slums in Nairobi, Kenya, using anchored best-worst scaling

Lagerkvist, C-J., Kokko, S. & Karanja, N. (2014). Health in perspective: framing motivational factors for personal sanitation in urban slums in Nairobi, Kenya, using anchored best-worst scaling, *Journal of Water, Sanitation and Hygiene for Development,* vol. 4(1), pp. 108-119. DOI: 10.2166/washdev.2013.069.

The purpose of this paper was to understand the driving factors for sanitation adoption and use, more specifically, adoption of the Peepoo-bag. We started by conducting a literature review of previous findings on sanitation adoption and use in sub-Saharan Africa (Jenkins & Curtis 2005; Jenkins & Scott 2007; Schouten & Mathenge, 2010; Isunju et al., 2011; Whaley & Webster, 2011). From this material, we developed a framework of hypothesised factors motivating the choice to use the Peepoo-bag. Using this literature review as a base, as well as conversations with local scientists and sanitation experts, we developed a list of factors as hypothetical outcomes for users when using the Peepoo-bag as a toilet. When examining preferences and decision-making that

may explain household demand for sanitation, individual attitudinal and structural factors have been suggested to be more important than socio-economic characteristics, which tend to lack explanatory power and provide limited predictability of individual changes in behaviour (Jenkins & Scott, 2007). Our point of departure was that demand for sanitation is driven by individual preferences and preference data would allow us to capture the motivation to purchase the toilet solution and the perceived relative advantages of using it. The underlying assumption for this study was that the decision to adopt and use a specific sanitation solution is driven by individuals' motivation (Jenkins & Curtis, 2005). The result of such an assumption is that the individual is driven by the need to satisfy specific personal needs and wants, in this case through the adoption and use of the Peepoo-bag.

The empirical material was collected in February 2012. A list of 27 motivational factors were validated in a short face validity test with a small group of respondents, who reported the content and presentation of the factors to be comprehensible. Then a survey of 122 Peepoo-bag users living in the informal settlement of Kibera in Nairobi, Kenya was conducted. The survey was used as a tool to obtain rankings of the motivational factors based on their importance, to be able to explain adoption of the Peepoo-bag. The ranking was performed by using the anchored best–worst scaling (ABWS) technique (Marley & Louviere, 2005), which was conducted on paper and involved participants choosing the most and least important factors from a limited set of randomly selected factors. Here, factors can be seen as qualities or possible outcomes or consequences of using the Peepoo solution. The exercise produced a comprehensive ranking of factors with the help of statistical analysis applying hierarchical Bayesian methods. We found that personal safety, avoidance of discomfort with shared toilets, and cleanliness and convenience for children were ranked as being of highest importance. Motivational factors related to health were only relatively highly ranked. These findings extend the stream of research on household demand for improved sanitation in the Global South by including motivational factors for the adoption of a low-cost solution, exemplified in the Peepoo-bag.

The study indicates that factors contributing to overall individual wellbeing, beyond health benefits, drive adoption and use of the Peepoo-bag. This suggests that non-health benefits of the Peepoo solution and other similar sanitation solutions should be acknowledged by technology developers and implementers and communicated to raise awareness and encourage adoption of improved sanitation in informal settlements. Our results also propose that interventions targeting individual motivations can be complementary to infrastructure-

oriented interventions, when aiming to change sanitation practices. Understanding the motivational needs for personal sanitation based on information on why households adopt such a personal solution can guide sustainable sanitation planning and public health management and facilitate the marketing of sanitation solutions to the poor. These findings may help develop policies that aim to increase the demand for sanitation and which can be better directed to meet the needs of people in the contexts of urban informal settlements, like Kibera.

4.2 Paper II

Using Zaltman Metaphor Elicitation Technique to Map Beneficiaries' Experiences and Values: A Case Example from the Sanitation Sector

The main aim in this paper was to obtain an understanding of the legitimate interests and sanitation consumers' understanding of the societal challenge of lack of access to sanitation in the school environment in the informal settlement of Kibera in Nairobi, Kenya. In this study we mapped sanitation consumers' (with and without experience of the Peepoo-bag) mental models of the complex problem of sanitation. Mental models have been defined as cognitive structures that influence consumer behaviour. They include attitudes, emotions and feelings, actions, symbols, goals, personal values, images, memories of past events, anticipated events, and sensory images (Christensen & Olson, 2002).

More specifically, we used the Zaltman Metaphor Elicitation Technique (ZMET), a needs-driven approach (van Kleef et al., 2005), to obtain the empirical material necessary for developing the mental models. ZMET is based on the inductive approach of grounded theory (Zaltman & Coulter 1995) as well as Means-End Chain theory (Gutman, 1982) and the laddering technique (Reynolds & Gutman, 1998) to map cognitive structures within the mental models. In ZMET, a qualitative method is used for the collection of empirical

material, which is then quantified with the help of computer software to produce aggregated results.

In the empirical case of Peepoople, this meant finding out the attributes that the users and non-users of the Peepoo-bag, who are all consumers of sanitation services, attached to the "problem of sanitation". Following this, we used probing techniques typical for laddering interviews, to find out the consequences of these attributes and which personal goals, understood as values, were linked to the attributes and the consequences sought by the sanitation consumer (Gutman, 1982; Botschen et al., 1999), and the consequence of not fulfilling a sought goal or value. Mapping out these chains of sanitation consumers' reasoning on the challenge of sanitation was the core issue studied in this paper.

The chains show the paths of consequences of access to sanitation and the personal values, understood as goals and needs in life, which can be fulfilled. This kind of information is useful for planning, designing, implementing and evaluating sanitation investments and for thinking about how to encourage the adoption of sanitation solutions and stimulate new sanitation behaviour. On a more general note, this kind of exploration of people's mental models provides insights into what potential and current beneficiaries think about the issue at hand, how the issue fits into their lives and needs, and why the issue is important to them. Finding out what matters, rather than answering questions, helps to capture the worth of a programme, intervention, product or service by what is valued by the consumers, using their language, context, and standards. This can enable a better fit of a program, intervention, product or service with the local user needs and realities.

The results of this study contribute to evaluation studies, by introducing a method from the consumer behaviour and marketing context. We suggest that ZMET can be a useful tool for program planners and evaluators in understanding how a program or an intervention can fit the realities of the beneficiaries. The technique is a tool for investigating what beneficiaries think about the specific problems that a program is aimed at solving and their underlying beliefs. Our results offer a comprehensive hierarchical value map of different types and levels of insights into parents' thoughts and feelings on school sanitation and their child's well-being, often expressed as desired values, goals, or end states. Understanding mental models is relevant for programs and interventions that aim to change people's behaviour as mental models affect people's decision-making and, thus, behaviour. Understanding mental models can reveal possible problems in design and implementation as well as unexpected factors needed to be included for successful intervention.

4.3 Paper III

Social Entrepreneurship: Creating Social Value When Bridging Holes

The aim of this paper was to understand how social value is created in a context characterised by institutional complexity. Peepoople was used as a case of social entrepreneurship, to identify key stakeholders in the venture and their logics, which guided their expected and experienced value from participating in the venture. The concepts of structural holes (Burt, 1992; Beshrov & Smith, 2014) and institutional logics (Friedland & Alvord 1991; Kraatz & Block, 2008; Thornton & Ocasio, 2008; Greenwood et al., 2011), served as a theoretical framework to examine how the creation of social value was formed by stakeholders embedded in and drawing on different institutional logics. I used the case study approach, drawing mainly on in-depth interviews, focus group discussions and observation during fieldwork, carried out between 2012 and 2015, as the main sources of empirical material.

The main findings from this study showed that the stakeholders were embedded in strong tie networks (Granovetter, 1973) adhering to the distinct institutional logics (Thorton & Ocasio, 2008; Greenwood et al., 2011). At the same time, a rather neat representation of a social network could be traced across these stakeholders and the social groups to which they belonged. This network was made up of weak ties (Granovetter, 1973; Burt, 1992) linking the different stakeholders to the Peepoople venture. A shared goal facilitated the co-existence of competing value logics and provided a common space. The multiple logics, however, formed multiple social value outcomes as outcomes of the different logics. The findings also show how otherwise unconnected stakeholders in a social enterprise, and their embeddedness in different institutional logics, provides one explanation for why and how social value is created. The paper contributes to practice by suggesting that acknowledging and addressing gaps in knowledge and resources can lead to social value creation if social enterprises remain open to different logics. Acknowledging and addressing structural holes, as suggested by Katre and Salipante (2012), can lead to social value creation through innovative and relevant solutions to societal problems, and act as a catalyst for innovative action when multiple value logics meet (Jay, 2013). Being

open to different perspectives can be essential to release the innovative potential in social enterprises.

The co-existence of different logics can also be a key factor for successful social value creation in social enterprises, if the competing logics are turned into complementary sources. Moreover, the dependency on logics from different networks of stakeholders shapes social enterprises to produce outcomes consistent with the different logics. Therefore, social value should not be viewed as singular, but rather as multiple, shaped by purposeful mixing of practices, beliefs, and logics from different strong tie networks (Burt, 2004; Battilana & Dorado, 2010). Like previous studies in social entrepreneurship, the findings in this study suggest that the value created by social enterprises is experienced subjectively (Guclu et al., 2002; Austin et al., 2006; Zahra et al., 2009) implying subjective, context-driven, and potentially competing understandings of what is valuable to the different stakeholders (Lepak et al., 2007, p. 183). This may pose challenges for evaluating the success of social enterprises, especially when the tendency is to use evaluation approaches from the for-profit sector, focusing on economic logic.

4.4 Paper IV

Multilevel perspective on sanitation practice: a case of social innovation

Kokko, S. & Fischer, K. Multilevel perspective on sanitation practice: a case of social innovation. Manuscript

The aim in this paper is to study "what is going on" when social innovation is used as a vehicle to create change in the local context, toward social and environmental betterment. It follows the empirical case of a social enterprise, Peepoople, which developed and implemented a social innovation, a biodegradable and self-sanitising sanitation solution, the Peepoo-bag, in its quest to change the local socio-technical system of sanitation in the informal settlement of Kibera in Nairobi, Kenya. Previous studies on the Peepoo-bag indicated that the solution met the needs of the local community. Despite this, the venture went bankrupt after operating for eight years in Kibera.

This paper explains the failure of the Peepoo social innovation in the sanitation sector and provides insights on how social innovators may redirect the

innovation process to create real change. Drawing on the multilevel perspective on sustainability transitions (Geels, 2004) in combination with practice theory (Reckwitz, 2002; Shove, 2003, Shove & Pantzar, 2005; Watson, 2012), elements of practices associated with the social innovation are identified and how these interact with the regime, consisting of established practices in the sanitation sector, is analysed. Factors are identified, which enable and resist social innovation to create change at the regime level. This paper is primarily based on interviews conducted during a longitudinal case study between 2012 and 2018. This study included actors at the sites of negotiation or dispute between actors, which Peepoople was trying to align practices between (Beverage & Guy, 2005), to implement the Peepoo innovation: namely Peepoople as the social enterprise providing the innovation, the local users of the innovation and local policies in sanitation. To understand these actors' practices more in-depth, the practices were broken down to materials, competence and meaning, as suggested by Shove and Pantzar (2005) and the element of activity was added. Changes in these elements and their (re)configuration can be a consequence of innovation (Shove et al., 2012; Watson, 2012 in Langendahl et al., 2014). To change the dominant practices, radical changes entering at niche level must be able to spread into multiple dimensions of the regime (Markard et al., 2012; Westley, 2018).

The results suggest that: 1) the division of practice into elements of material, activities, competence and meaning facilitates a detailed analysis of the ways in which an innovation interacts with the existing regime; 2) social innovators may need to act as activists to align the meanings ascribed to the practice at hand, within the regime actors to those of the social innovation; and 3) understanding the different elements of practice helps identify lock-ins at regime level, which hinder niche social innovations to break though. We conclude that changing the practices of more resourceful actors in different dimensions of the regime, especially policy, is necessary in order to move beyond experimentative settings of social innovation. The results from this study support Seyfang and Haxeltine's (2012) findings, leading to the suggestion that deeper engagement with resourceful regime actors is often necessary to enhance regime influence. It is not enough that solutions are locally adapted and embedded in the market. The dynamics are more diverse and complex and social innovation needs support from other regime actors.

4.5 Main findings

Distinct aims, methods and theories have formed the four papers and their findings. Some similarities can however be identified, Papers I-II highlight

methodologically how socio-cognitive factors affecting the decision-making of individuals can be identified. Paper III presents these factors in context; the socio-cognitive factors are formed and shared within social groups and can be examined through the lens of institutional logics. Finally, in Paper IV, these shared understandings are seen as practices, beyond purely socio-cognitive factors. In Paper IV, we also analyse how the interactions of different levels of practice may trigger change. What underlies all four papers is that, by understanding how people make decisions, thus behave or alternatively by understanding what people do (practices), we can better understand change and how it can be created, facilitated as well as hindered, at the individual, group and systemic level. In Table 6. key findings from each paper are summarised.

Table 6. *Summary of the key findings in papers I-IV*

Paper I	-	In the context of sanitation for the poor, motivational factors related to safety, comfort, cleanliness and convenience are important for end-users, suggesting that overall well-being beyond health can drive adoption and use of low-cost sanitation solutions.
	-	Understanding the motivational needs for personal sanitation, like user preferences, based on information on why households adopt personal solution can guide sustainable sanitation planning and public health management, and facilitate the marketing of low-cost sanitation solutions to the poor.
Paper II	-	Finding out what matters, rather than answering questions may help to capture the worth of a program or intervention by what is valued by the beneficiaries using their language, context, and standards.
	-	ZMET is a useful tool for understanding the local context and users' needs, enabling a better fit of a program, intervention, product or service with the local reality.
Paper III	-	Bridging networks and their distinct value logics addresses gaps in knowledge and can lead to social value creation.
	-	The co-existence of different logics can be a key factor for successful social value creation in social enterprises, if the competing logics are turned into complementary sources of innovation. A common goal may facilitate the co-existence of different logics.

Paper IV	-	Division of practice into elements of material, activities, competence and meaning facilitates a detailed analysis of the ways in which a social innovation interacts with the existing regime.
	-	Social innovators may need to act as activists to align the meanings ascribed to the practice at hand, within the regime actors to those of the social innovation.
	-	Understanding the different elements of practice helps identify lock-ins at regime level, which hinder niche innovations.
	-	Changing the practices of more resourceful actors in the regime, especially policy, is necessary to move beyond experimentative settings of social innovation.

4.6 Reflection

Paper I is based on a deductive approach (Rosenberg, 1995; Robson, 2011) that started with an expected pattern derived from theory, which was then tested in the empirical setting with the aim to produce generalisable results. The underlying theoretical framework for this study lies in consumer behaviour studies. These studies aim to understand the micro dimensions of the behaviours of individuals. The aim is often to provide information to policy makers or businesses that can be used to influence consumer behaviour (Simon, 1959) or adapt a product or service to consumers' desires, assuming that a person's motive to act is motivated by goals and ends when those goals are satisfied. This kind of information is used to produce products and services, which consumers want to buy and thereby increase market shares (Hein et al., 2008). It further implies that the individual is not necessarily profit maximising, but rather satisfying needs in a rational manner (Simon, 1959).

The method and theory of the best-worst scaling technique is used in Paper I, based upon the conjoint choice experiment, in which individual preferences for the characteristics of a product or service are listed in order of importance. The aim with such experiments is to identify which attributes of the product or service (e.g. motivational factors of the Peepoo-bag in Paper I) are important in the individual's decision to buy the product or service (Vermeulen et al., 2010). The best-worst scaling technique, although predominantly used in marketing, was first used to understand a sustainability challenge; "degree of concern that the general public had for each of a set of food safety goals, including irradiation of foods and pesticide use on crops" (Flynn & Marley, 2014, p. 178). The strength of this method is that it does not rely on subjective understandings of

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numbers on a rating scale (Flynn & Marley, 2014) as these have little meaning in practice when choosing a product. In addition, the respondent does not have to discriminate among alternatives, meaning that not every alternative can be highly ranked; the alternatives become ranked hierarchically when choosing the best and the worst in sets of alternatives (the product attributes, which in this empirical case were the 27 motivational factors).

Paper I provides a one-shot picture of Peepoo-users' preferences. It gives some indications to what goals or needs may underlie the ranked preferences, for instance, the feeling of security that the use of the Peepoo-bag provides its users or the ease of life created by avoiding the use of shared toilets. However, little can be said about why the individual makes their choices, as the theory and method do not account for the context around the individual's decisions or choices. In order to understand the individual's (assumed) goal driven decision-making in-depth, we wanted to explore the more complex decision-making process. This process has been suggested to involve mechanisms that the economic individual uses to relate themselves to their environment and achieve their goals, as a real-life decision has been claimed to involve some goals or values (Gutman, 1982). With this in mind, while still focusing on the individual as a rational decision-maker, we saw a need to understand what factors, and by which means, the Peepoo-bag led the Peepoo users to satisfice (or oppositely not satisfice) their goals in terms of sanitation and well-being and on which factors this reasoning process was based. This leads to paper II.

The experiences and results from Paper II were, in many ways, in line with those of Paper I. However, the inductive approach used in Paper II provided more support in terms of depth and breadth of user understandings of sanitation, as opposed to the rather narrow findings from the deductive, theory driven best-worst ranking exercise used in Paper I. Understanding an individuals' reasoning around the local sanitation problem provided information on why some motivational factors of the Peepoo-bag were ranked higher (more valued) than others and which needs the Peepoo-bag was meeting. Overall, the mapping of issues as problems which people associate with sanitation and the consequences they have on the individual provided useful information for understanding the benefits of the Peepoo-bag for the users. This information provided insights on the kinds of problems that could potentially be solved by using the Peepoo-bag. This sheds some light on the consequences solving the problem of sanitation could have on the end-users of the Peepoo-bag, i.e. the change that Peepoople created, as understood by the people living in the local context.

At this point in the research process, I had been in Kibera on several occasions, had spoken with a variety of local stakeholders, spent time at the

Peepoople office in Kibera and talked with different actors outside Kibera, with different interests in the Peepoople venture. I also started mirroring my findings from the two first studies with the social value literature within the field of social entrepreneurship, as the users' preferred attributes of the Peepoo-bag (Paper I), as well as the mapping of how sanitation beneficiaries needs could be met, could also be understood in terms of added-value to the users of the Peepoo-bag. The literature on social value suggested that social value should be understood as subjective and multiple (Polonsky & Landreth Grau, 2008). Acknowledging the multiplicity of actors benefiting from experienced value, not only from having access to the Peepoo-bag, but through their involvement in the social entrepreneurial venture, shifted my focus onto understanding the impact of the Peepoo innovation and of the social entrepreneurial activity of Peepoople, as social value, beyond the end-user perspective. It seemed to me that a great deal of the impact, as experienced value, was not captured if the end-users was the only focus. It also became of interest to understand who experienced this value, how and why, leading to Paper III.

In Paper III, the focus moves from understanding the individual's behaviour onto the organisation-level interactions of the logics of individuals as members of social groups, as well as onto the relationships between the different logics. This paper was trigged by the empirical context. When compiling empirical material, from different actors in the Peepoople venture, on the outcomes of the entrepreneurial activity experienced and interpreted as social value creation, a pattern emerged of the different logics the actors drew on depending on which social group they belonged to. I added questions on expectations that the actors had on the Peepoo-toilet solution to the original interviews and searched the previously collected material for expressions of expectations on social value.

The research process unfolded as an iterative process (Srivastava & Hopwood, 2009) of reflection by going back and forth between the empirical material and literature. I found theory on institutional logics useful for explaining the different logics, as it provided a context around the individual as an active agent in a social group (structure) when making decisions and taking action, which I discussed from a different perspective in Paper I and II. The theory of institutional logics provides an alternative framework for understanding what guides action. It can be a useful concept for making sense of the different rationalities and behaviour of people in organisational settings (Thornton & Ocasio, 2008) like those enacting social entrepreneurship and social innovation, as it embraces the multiplicity and complexity of logics in interaction (Dacin et al., 2011; Greenwood et al., 2011; Besharov & Smith, 2014). The institutional logics shared within social groups can be representations

of the worldviews held by for instance the social entrepreneur, and be different from actors in different dimensions (market, policy, technological etc.) of the regime. These shared logics are "socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality" (Thornton & Ocasio, 1999, p. 804). By bringing in the institutional logics approach, which emphasises the social and networked context in which individuals act and make sense of the world, I bring in a new perspective to understand the Peepoople case and how it created social value and thus the change in the contexts of the different actors involved in the social entrepreneurial venture. Another aspect, which was only briefly mention in Paper III, but which was important for the progression of this thesis, is the advantage that the complementary nature of the different logics coming together in the Peepoople venture seemed to create, a space for innovation and opportunity to create a relevant solution to a societal problem. This kind of meeting of multiple, otherwise unconnected logics has also been suggested by others (e.g. Kraatz & Block, 2008; Jay, 2013), to be a source of 'good ideas', of innovation, and of creating entrepreneurial opportunities. This triggered my interest in the agency that social entrepreneurs and their innovative solutions have in solving problems, which had attracted me to the Peepoople case.

At this time, the Peepoople office in Stockholm had been closed down and the Peepoople brand transferred to a non-governmental organisation, International Aid Services. The operations had been downscaled drastically. Obviously, meeting the needs of the current Peepoo-bag users and promises of meeting the needs of other end-users as depicted in Papers I and II, as well as the experienced multiplicity of social value outcomes of actors involved in production and use of the solution (Paper III), could not alone explain the case of Peepoople as an entrepreneurial agent creating change in the system and structures where it was present. The change in the empirical context required another approach to account for the complexity of the case and to understand the apparent and sudden failure of Peepoople.

The theoretical framework and findings from Paper IV have shaped the summarising chapter of this thesis and its overarching aim. The complexity and multiplicity of actors and structures so often associated with social innovation and social entrepreneurship, but excluded in the market-based approaches used to understand social entrepreneurship, could be accounted for by using the multilevel perspective (Geels, 2004) to understand the Peepoople case. The multilevel perspective proved to be a useful tool for examining change processes initiated by social innovation and social entrepreneurship. The multilevel

perspective, by accounting for the multiplicity of actors and structures and their inherent complexity in a process to create change, may be highly suitable for explaining the social innovation process enacted by social entrepreneurs. Considering that social entrepreneurship has been suggested to be different from the conventional types of entrepreneurship (Alvord et al. 2004; Perrini et al., 2010), conventional market-based assumptions, which focus on organisational growth, may not provide a clear understanding of the process of social entrepreneurship to create change. Likewise, social innovation is different from technology and business innovation (Pol & Ville, 2009; Phillips et al., 2015), suggesting that theories based on the profit-seeking nature of business innovation and market diffusion of innovation to understand how change is created by the means of social innovation, may not fit the reality of social innovation.

Reflecting on the three earlier papers, which focus on the individual (Papers I and II), the individual as part of a social group (Paper III) and comparing them to Paper IV, practice theory, provides an alternative approach for obtaining new understandings of the dynamics in a system and for understanding embedded patterns of doing, which are often framed as individual choices (Watson, 2012). Behavioural change and consumer or user preferences for (technological) solutions have been traditionally considered necessary to obtain a systemic change (Smith et al., 2010, p. 439). Papers I-III provide insight into the meaning element of practices as mental activities and motivations related to the social significance of the practices (Langendahl et al., 2014). However, as Paper IV suggests, this may not be enough. Rather, there is a need to look beyond the individual's attitudes, behaviour and choices as explanations for change in what people do (Shove & Walker, 2010), at the actual everyday doings, all of the practices and the changes in them, which bring about the change at different levels. Moreover, this change is not limited to the practices of producers and consumers (Shove & Pantzar, 2005) of social innovations, but rather may involve practices performed on a number of dimensions, forming the (socio-technical) system of practice (cf. Geels, 2011; Watson, 2012), like sanitation.

Approaching the niche and regime level dynamics by investigating different actors' practices clarifies the social dynamics at play when introducing a social innovation to transform the existing regime and the practices within it. Understanding the regime, made up of semi-coherent sets of rules (including practices), which are linked together (Geels, 2004, p. 904), puts forward some of the challenges that social entrepreneurs may encounter in the process of social innovation. The Peepoople case highlights the difficulty of changing one set of rules (e.g. those of the market and user domain) without changing the others, as

it is the alignment between the rules, which makes a regime stable and enables coordinated activities (Geels, 2004). In this specific empirical case, the lack of entrepreneurial agency of the social entrepreneur, Peepoople, in the political dimension of the regime hindered the creation of change in the mind-set of sanitation and thereby a deeper societal transformation. This highlights the political nature of both social innovation, as well of social entrepreneurship, an issue which has been underexplored in current social innovation as well as sustainability transitions studies (Van der Have & Rubalcaba, 2016; Antadze & McGowan, 2017) and perhaps even more so in studies of social entrepreneurship.

In summary, when I started this PhD research project, my aim was to measure the impact of the change created by the Peepoo-bag in the local community in Kibera. I focused first on identifying indicators of change experienced by the users' of the Peepoo-bag with the help of the methods used in Papers I and II. During the research process my focus shifted to understanding the change created by social entrepreneurship and social enterprises as social value, beyond the individual preferences, goals and needs of the end-users of the innovation, to further understand change as the generation of sustainability transitions in systems, using Peepoople and the Peepoo-bag as an empirical illustration of such transformative change making. The perspectives I have made use of have moved in a linear fashion from micro to more macro understandings, with the units of analysis shifting across the papers. I have studied the rational behaviour of the individual in Papers I and II, and individuals as members of social groups (Paper III) and moved beyond the individual to focus on practice as the unit of analysis in Paper IV (Figure 2). By doing so, aspects of the dynamics of the rule-systems (Geels, 2004) at play at multiple levels, in terms of individual human actors (Papers I and II) networked actors (Paper III) and in practices (Paper IV), have been explored. This provides some insights into the key challenge, which social entrepreneurs as agents of transformative change need to overcome to create change in existing, often unsustainable, social structures, that of aligning the mind-sets or logics of resourceful actors to those embedded in the social innovation.
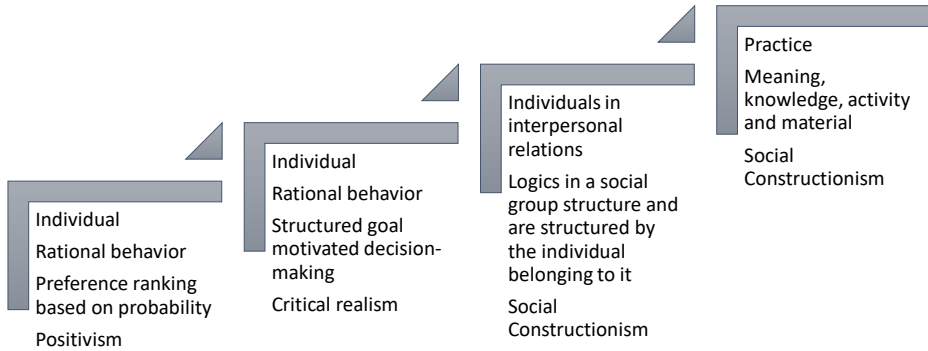
Individual
Rational behavior
Preference ranking based on probability
Positivism

Individual
Rational behavior
Structured goal motivated decision-making
Critical realism

Individuals in interpersonal relations
Logics in a social group structure and are structured by the individual belonging to it
Social Constructionism

Practice
Meaning, knowledge, activity and material
Social Constructionism

Figure 2. The linear process moving from micro to macro understandings of the social context of social innovation

In the following chapter, I discuss the contributions of the methods, theories and findings from each paper in terms of the overarching aim of this thesis and how the findings can advance knowledge of social entrepreneurship as a generator of social innovation for transformative change.

5 Discussion

The aim of this thesis is to advance knowledge of the social innovation process which social entrepreneurs engage in to transform society. My interest in better understanding this was triggered by the insights gained while studying an empirical case of social innovation in the sanitation sector in the Global South. In the empirical setting, the social innovation process which the social enterprise, Peepoople, engaged in unfolded as complex, made up of multiple actors and layers. It eventually also led to a failure to create transformative change. However, in literature and policy, social entrepreneurship and social innovations are recognised as tomorrow's systems changers, transforming societies into more sustainable ones. In this thesis, I use the four papers it consists of to draw some insights on the social innovation process and the dynamics at play, which may either enable or hinder successful sustainable transformation of society.

I question the usefulness of the deductive, market-based approaches and mechanisms, and their underlying assumptions, often used in academia and practice, to understand the change created through social entrepreneurial agency and social innovation (Dees, 1998; Mair & Martí, 2006; Dorado & Ventresca, 2013; Phillips et al., 2015; Rey-Martí et al., 2016). The findings from this thesis address recent requests for complementing existing literature (Bloom & Chatterji, 2008; Westley et al., 2014; Phillips et al., 2015; Van der Have & Rubalcaba; 2016) with alternative perspectives on how to understand the process of transforming society through social entrepreneurship and social innovation, which is at the core of both concepts. This thesis also makes a contribution by complementing existing literature with empirical studies on social entrepreneurship with closer links to social innovation and the specific context in which social entrepreneurship is enacted (Sassmanshausen & Volkmann, 2016).

To fulfil the aim of this thesis, different perspectives were employed to understand the dynamics of the multiple actors and structures involved in the

social innovation process of creating transformative change and how these may shape the process. These dynamics were captured at individual (Papers I-II), social group (Paper III) and system (Paper IV) levels. Some practical implications can be drawn from this thesis; however, the main contributions are theoretical and methodological and aimed at developing a future research agenda.

5.1 Discussion of the four papers

The multilevel perspective (MPL) serves as heuristic device to connect and analyse the findings from the four papers which constitute this thesis. MLP is useful for distinguishing the dimensions of the context in which a social entrepreneur acts to transform structures by introducing radical social innovation. By illustrating the different parts of the multi-actor relationships involved in the social innovation process, the dynamics and complexity of such engagements can be traced.

Radical social innovations, like those provided by social entrepreneurs, aim to solve problems within the wider context, at regime level (cf. Geels, 2004). Therefore, the niche-regime dynamics have been the focus of this thesis. In Papers I and II, I have focused on actors in the end-user/market domain of the sanitation regime. In Paper III focus was shifted to actors involved in developing and implementing the niche innovation, and in Paper IV, the policy domain of the regime was included in the analysis. Creating change at landscape level is difficult and is a long-term process, outside of the time scope of this study.

Papers I and II make methodological contributions to the overarching aim of this thesis. They offer tools for understanding the values, beliefs and worldviews, which guide human decision-making and behaviour. Policy-makers consider changes in precisely these factors to be the cornerstone of societal change (see Shove, 2010 for a critical view on this). These micro social structures of norms constituted of beliefs and values, make up a part of human systems. Understanding these kinds of behavioural factors can help social entrepreneurs in creating strategies to change them. For instance, the case of the Peepoo-bag showed that the end-users of sanitation highly valued the opportunity to avoid having to place themselves at risk when using public toilets or in relation to open defecation at a night as well as the unpleasantness of sharing toilets with others. The users also valued the hygienic quality of Peepoo. Similarly, findings from Paper II describe the reality of how sanitation is perceived by end-users and which beliefs and values people ascribe to the problem domain of sanitation in the market. These are factors which describe

the user domain of the regime, e.g. what aspects of sanitation are valued among the end-users. Knowing the market, its preferences, and what is valued in the market helps design relevant solutions and identify preferences, beliefs or values that may need to be changed to more sustainable ones or, alternatively, windows of opportunity for niche social innovations to take hold in the market.

Table 7. *Key contributions of papers I-IV to thesis aim*

Paper I	
	- Methodological contribution for understanding behavioural motivations in terms of the preferences of actors in the end-user/market domain.
	- Knowledge about behavioural motivations of end-users in the immediate environment, the problem domain of social innovation, can be useful information on the end-users' decision-making and how it may enable or resist change.
	- Understanding what the different actors' rule-systems are made up of (e.g. preferences) can facilitate the alignment of rule systems in the regime to the social innovation, which is necessary to create real change.
	- This kind of information allows for the detection of any unmet needs or changes in preferences in parts of the regime level (that of the end-user/market dimension), and thereby identify windows of opportunity for social innovations.
Paper II	- Methodological contribution for developing understandings of the worldviews and belief systems of humans, i.e. rule-systems and what factors they consist of.
	- Provides understandings of institutions, made up of normative and cognitive rules like values, norms and the nature of reality, and worldviews shared by groups of people, i.e. social groups which make up the different dimensions of the regime.
	- Understanding users' rule-systems, their socio-cognitive contexts, also understood as institutions, in which they are embedded, may help social entrepreneurs in identifying factors which enable or hinder the enactment of entrepreneurial agency to create change in a given context.

Paper III - Institutional logics, i.e. rule-systems of social groups, depict the soft structures of the regime, and the logics that guide actor's decision-making, behaviour and practice in the different structures.

- Competing institutional logics (beliefs, values, norms and worldviews) depict the dynamics between rule systems/institutions in the process of social innovation.

- Hindering factors in the regime actors' logics need to be identified and overcome to legitimise social innovation in the regime.

- The coming together of different institutional logics is beneficial for the creation of innovative solutions, aligning them across niche and regime levels may be necessary to create transformative change. In this process a common goal can be an accommodating factor.

- Aligning the institutional logics in the regime, with the logics embedded in the social innovation may increase regime stability, i.e. more structure and thus a new status quo in line with the innovation.

- Understanding interdependencies between different social groups in the regime, through a social network approach, can clarify how to align the multiple institutional logics.

- Building network relationships across structural holes to regime actors may be beneficial for social entrepreneurs to increase their sphere of influence and develop unusual alliances.

Paper IV - Understanding the practices in the wider context, the regime in which social innovation is introduced, puts forward some of the challenges that social innovations encounter when challenging established practices.

- Dividing practices into their different elements - material, activity, competence and meaning helps the analysis of what it is in different' actors' practices that accommodates and resists change.

- Focusing on the market dimension and using market-based approaches to understand change induced by social innovation and social entrepreneurship neglects the entrepreneurial agency necessary also toward other resourceful actors in the regime, e.g. those in the political dimension.

Paper III contributes with understandings of the dynamics involved at organisational level of the niche innovation, by depicting these dynamics as competing institutional logics. The concept of institutional logics can be used to

capture the mental models, i.e. the rule-systems of the different social groups (Geels, 2004), in the niche-regime interactions. In Paper III, the focus was on capturing the value logics, i.e. what different actors expected and experienced the value outcomes of the social entrepreneurial activity of Peepoople to be. These logics can also be understood as logics of change: what kind of change was expected and what kind of change was experienced by the different actors. Institutional logics guide actors' decision-making and behaviour and make up the meaning element of practice in the different human structures of the niche and the regime. In the niche level setting, where development and experimentation (Geels, 2004) with social innovation takes place, the complimentary and often competing institutional logics may be a source of new ideas, i.e. innovation, as the Peepoople case illustrates. However, in niche-regime interactions institutional logics may serve to depict the dynamics at play when the institutional logic, in which the social innovation is embedded (e.g. that of the social entrepreneur), challenges the dominant institutional logics in the regime. Understanding the institutional logics of regime actors (those of technological, political, market and socio-cultural dimensions), may clarify enabling and resisting factors to legitimise the social innovation in that specific regime, as has been suggested by Witkamp et al. (2011). Different institutional logics may thus influence the social innovation process from development at niche level, to implementation at regime level with the aim of transforming the regime. Knowing what multiple institutional logics are comprised of and how they interact (Van der Have & Rubalcaba, 2016), provides the social entrepreneur with relevant information to socially embed the innovation in the different dimensions of the regime. This kind of information may also be useful for aligning multiple institutional logics, i.e. the normative and cognitive rules of the regime actors, to be receptive to the social innovation. According to the MLP framework, regime adoption of the innovation can create new stability in the regime as the regime becomes more structured with a new status quo, which is in line with the logics of the social innovation and thereby creates a transformation in the system (cf. Geels, 2008).

Moreover, social network theories (Paper III) can help make sense of the dynamics at multiple levels, in terms of dependencies and interactions between the social groups in and between the different dimensions of the regime and in relation to the niche innovation. Building network relationships across structural holes, as suggested in Paper III, to regime actors may be beneficial for social entrepreneurs to increase their sphere of influence (Westley et al., 2014) and develop unusual alliances as suggested by Moore et al. (2015). In the empirical case of Peepoople, this networking activity was enacted at the organisation level,

in the niche to develop the social innovation, but did not take the resourceful regime actors into account, which could be one indicator of why Peepoople failed to create societal transformation at regime level.

Paper IV provides an alternative perspective to the more socio-cognitive understandings of the human dynamics at play in a social innovation process used in Papers I-III. It even challenges the focus of the rule-systems rationale (Geels, 2004) of humans' attitudes, behaviour and choices as an explanation for changes in what people do (Shove, 2010; Watson, 2012). Instead of understanding change as an outcome of changed behaviour resulting from individuals' attitudes and decision-making, these factors are an element of practice (Reckwitz, 2002), together with other elements of material, activity and competence, and carried by people participating in that specific practice, e.g. sanitation. The practice approach suggests that the everyday doings, the practices and the changes in practices, bring about change at different levels of scale in a system. Thereby practices, instead of individuals, become the unit of analysis. Aligning practices (Paper IV), as opposed to only beliefs and values like those making up institutional logics, across the niche innovation and different dimensions of the regime may be necessary in order to change practices at regime level.

Moreover, the findings from Paper IV suggest that an enabling end-user and market context, where new practices induced though social innovation seem to break through, provides an insufficient explanation for the success of the social innovation process to create transformative change. Focusing on market dimensions and using market-based approaches to understand change induced by social innovation and social entrepreneurship, neglects the dynamics of entrepreneurial agency necessary for other resourceful actors in the regime, e.g. those in the political dimension. This has been pointed out in previous studies (Westley et al., 2014; Moore et al., 2015). Understanding the institutional logics of powerful regime actors, like policy makers and those within the public sector, may help in clarifying the necessary strategies for aligning policy practice to the practice promoted through social innovation, and thereby legitimise the social innovation in the wider context (cf. van Welie et al., 2018). This may be a necessary undertaking before market diffusion strategies for scaling social innovation. The findings from Paper IV thus point to the need to align practices, across the multiple dimensions of the regime, which together form system of practice (cf. Geels, 2011; Watson, 2012), e.g. that of sanitation, to the practices of the social innovation in order to create a transformative change in the regime.

To summarise the specific contributions the four papers make to the overarching aim of this thesis, it can be concluded that by understanding people

and their actions in the maintenance and change of systems, we can better understand how social entrepreneurs can trigger change through the process of social innovation. This is regardless of whether change is understood as a behavioural, socio-cognitive challenge or as a challenge of changing practices. Understanding human action (behaviour and practices), thus sheds light on the dynamics between the niche and regime in the social innovation process and how the social innovation process can create change beyond local experimentative settings. The multiple levels and dimensions of human dynamics involved in the social innovation process of creating transformative change can be understood by tapping into the minds of people or, alternatively, analysing the practices as the everyday actions of people. Despite which approach one decides to take to understand how change can be created, these multiple games, as Geels (2004) has called them, are dynamic in interaction and co-evolve (Ibid). Understanding them in detail opens up windows of opportunity for social entrepreneurial agency and action to transform society through socially innovative means, beyond meeting the acute needs of the market.

The longitudinal engagement with the empirical case enabled greater understanding of the complexity of the social innovation process, which Peepoople engaged in. I call the Peepoople case a failure, as it did not succeed in creating a real change in Kibera, at least for now. The market- based model followed by Peepoople, with a focus on market diffusion of the social innovation, turned out to be a deceptive strategy for Peepoople to create change in the regime, the local sanitation problem domain. The failure of Peepoople, however provides a setting in which the differences between actors at multiple levels and their dynamics can be contrasted and some lessons can be learned about the social innovation process. As one of the initiators of Peepoople said to me just before the closing of the Stockholm office became public:

> "There is value in all of these failures […], for in these failures, there is value for the next one who gets on"

5.2 Theoretical contribution

My aim with this thesis has been to provide a novel take to increase understanding of social entrepreneurship with the help of the MLP framework. The dynamics of the innovation generated change processes captured in the MLP (Geels, 2004, Westley, 2017, 2018) are useful for understanding the agency of social entrepreneurs in creating transformational change in social structures and

thereby more sustainable societal development. These kinds of structures are developed, maintained and changed by humans and the MLP serves as a heuristic tool to capture these multiple and dynamic human interactions.

The overall theoretical contributions of this thesis are threefold. Firstly, this thesis supports previous literature (e.g. Westley et al., 2014; Moore et al., 2015) suggesting that the economic and rationalist approaches, commonly used to understand social entrepreneurship and change (Nicholls, 2009; Short et al., 2009; Smith & Stevens, 2010; Greico et al., 2015; Rawhouser et al., 2019) are insufficient in scope. They do not capture the dynamics of the social innovation process, nor how the multiple actors at multiple levels enable and resist change in the dominant structures, in which they are embedded. Social entrepreneurs act in and aim to change structures, which are made up of social groups with distinct institutional logics, belief and values systems, as well as practices. How well the social entrepreneur succeeds in changing these, by aligning them to those of the social innovation, determines how successfully the social innovation transcends from the "protected" and experimentative setting of the niche to the dominant ways of doing of the regime. This alignment can involve understanding the different regime actors' preferences (Paper I), mental models (Paper II), institutional logics (Paper III) and/or practices (Paper IV), in order to identify strategies of entrepreneurial action to change them. Such alignment requires social entrepreneurial agency across actors at niche and regime levels, and perhaps even further at landscape level. Aligning the different actors' rule-systems enables changing the dominant (unsustainable) structures and for their stabilisation in line with the social innovation (cf. Geels, 2004), creating a new status quo and thereby transforming society.

Secondly, the insights gained from this thesis suggest that successful transformation of society requires the social entrepreneur to engage in interactions with multiple actors in the different dimensions of the regime when engaging in a social innovation process. Understanding the end-user and market domain to enhance market adoption of the social innovation cannot solely create transformative change, nor explain it. Theories and methods which can account for the structures, rule-systems and practices, especially in the policy dimension of the context (i.e. regime), are necessary. This finding supports the previous findings of, among others, Westley and Antadze (2010), Westley et al. (2014), Hillman et al. (2018) and van Welie et al. (2018). It also calls attention to the challenges which social entrepreneurs face in terms of regulators and legislative factors which may not only create barriers for radical social innovation but also unpredictability in how the policy structures of the regime may change, i.e. its dynamics. In addition, mismatch of logics between social entrepreneurs and the

public sector is not uncommon. The public sectors' ambitions to increase efficiency by providing public services through market-based approaches, like social enterprises, has been shown to come with the loss of space for innovation and entrepreneurial activity for social entrepreneurs (Gawell et al., 2016).

These challenges are predominant to the context in which social entrepreneurship is enacted due to its often dependent relationship with the public sector, either as a source of subsidies or by other means of support for the process of social innovation, as has been suggested by Hillman et al. (2018). How exactly social entrepreneurs may exercise agency in the policy regime to change its institutional logics, has been discussed in the field of institutional entrepreneurship. Institutional entrepreneurship involves strategies for connecting innovation not only to the economic opportunity in the context of markets but those of politics and the socio-cultural context (Moore et al., 2015).

Thirdly, at a more abstract level, and drawing on insights from the process of this PhD project, I suggest that the literature on social entrepreneurship may benefit from the use of multiple scientific approaches to understand the phenomena of social entrepreneurship as agency to create transformative and sustainable societal change. The four papers in this thesis highlight that different methods and theories, often grounded in paradigms which are traditionally considered incommensurable (Kuhn, 1996), should perhaps be seen as complementary. They provide bits and pieces of information on the more complex picture of the dynamics at play when changing structures through social innovation and social entrepreneurial agency. In addition, richer understandings of complex and paradoxical issues, which social innovations are aimed to solve (Jankel, 2011), like societal sustainability, can be obtained by seeing the issue at hand through the lenses of different theories. This use of multiple scientific approaches (Gioia & Pitre, 1990) has the potential to provide wider insights and creativity. The use of different scientific approaches as heuristic tools facilitates exploration of complexity and extends the scope and relevance of research (Lewis & Grimes, 1999, p. 673). In other words, different approaches create more comprehensive understandings of a phenomenon, by revealing incongruences and complementarities. Including multiple perspectives on how social entrepreneurship creates transformative change by engaging in a social innovation process and by understanding the consequences of using different perspectives becomes important for advancing the field of social entrepreneurship.

In this thesis, the different theories and methods, and their underlying scientific approaches were used as specific subsets (Markard et al., 2012) of the metaframework of the MLP. Together they helped develop a more complete

picture of the intended societal transformation that the Peepoo social innovation and Peepoople as a social entrepreneur aimed to achieve. A metaframework, which provides equal importance to perspectives and knowledge gained through different approaches, is beneficial for understanding a multifaceted phenomenon like societal transformation. These kinds of transformations involve multiple actors (Papers III and IV) and institutions (Lawhon & Murphy, 2011, p. 357) (Paper II, III and IV), and are spatial, temporal and dynamic (Smith et al., 2010; Coenen et al., 2012; Svensson & Nicoleris, 2018) (Paper IV) making them complex. To conclude, in the current quest to solve sustainability challenges, improved understanding is needed of social entrepreneurship as a vehicle for social innovation and transformative change. To accomplish this, the research field needs theoretical frameworks and methods that capture the complexity, multiplicity of actors and processes, as well as the dynamics of multiple dimensions of structures and systems in change and the multilevel perspective may be one such approach.

5.3 Practical contribution

This thesis makes a contribution to policy and practice by highlighting the necessity for social entrepreneurs to build networks with resourceful actors like those in politics, policymaking and the public sector, as has been suggested by Moore et al. (2015) and van Welie et al. (2018). The diffusion of new ideas of behaviour and practice to higher levels of society requires context specific adaptation, just like in the local market, in order to mobilise ideas. Mobilisation of ideas can create policy demand and higher-level engagement for social innovation in society. This need has been identified in previous studies (e.g. Antadze & McGowan, 2017; Picciotta, 2017) and involves developing a cultural demand for the new idea (Moore et al., 2015), obtained by meaning making, as this thesis highlights in Paper IV. In practice, this poses a challenge for the current social innovation and social entrepreneurship policy context. The policy domain may need to shift its focus from understanding success of social innovation and social entrepreneurship in the economic terms of number of beneficiaries reached and the diffusion of products, services and entrepreneurial activity geographically, to understanding change in the logics and practices of institutions, the deeper structures of society where the problems social entrepreneurs aim to change actually reside. This also creates a challenge for the measurement fixated context in which social entrepreneurs act (Antadze &

Westley, 2012), as changes in the deeper structures cannot be fully understood and accounted for with simple metrics on outcomes and activities.

On a more abstract note, the need to use multiple approaches to understand the social innovation process which social entrepreneurs engage in stretches to policy and practice. The process of how this thesis evolved from a positivistic approach to a more social constructionist approach is a handy illustration of how ontological and epistemological differences between theories and methods may result in different courses of action to both understand an issue at hand (the problem domain), as well as understanding which actions the findings may lead to. For instance, the individualistic approaches used in this thesis, which focused on understanding the Peepoo end-users (Paper I and II), provide insights into the value added by the social innovation (preferred attributes and personal value or goals, which could be met by using the innovation), i.e. information often used to give direction to individuals' behavioural change. Here functionalist and rationalist marketing theories and methods were applied to understand the market, leading to a very narrow and perhaps flawed understanding of the success of social innovation to transform society. Whereas the systemic approach, accounting for multiple actors and levels of analysis, provided an alternative understanding of the social innovation process and what it may actually entail, i.e. market success was a poor denominator of societal transformation. Thus, using singular approaches to understand the complex contexts in which social entrepreneurship is enacted in and the complex structures in which the social innovation process unfolds provides only partial and narrow answers and, consequently, actions in practice and in policy. Considering that different theories inform "different imperatives and related courses of action to instigate change", they may direct practice and policy unfavourably in regard to deeper structural changes (Gallardo et al., 2018, p. 686).

Developing understandings of social entrepreneurship and transformative societal change, on a single paradigm such as a discipline, perspective or scientific approach may imply action, in both practice and policy that results in unfavourable effects of social innovation on the different social groups (the structures). Alternatively, it may simply result in unsuccessful social innovation when placed in a context (a wider system or structure), as is the case in this thesis. Narrow understandings may result in policy directing social entrepreneurs to develop social innovations that have limited or excluding rather than including effects. This may result in undesirable change, when the complexity, multiple levels and multiple actors of the context are not accounted for. Similarly, narrow approaches, and the resulting narrow practices, may

favour simplified understandings that are easy to grasp and compare, like metrics and measurements (Paper I), but loose an understanding of the underlying either causal explanations (Paper II) or constructed understandings of phenomena (Paper II and IV), which underlie peoples' behaviour and practices, and the way they can be changed. Approaches which accommodate multiple theories and methods have been suggested to be useful for creating understandings of and managing issues that may seem logical in isolation, but contradictory in connection (Lewis & Grimes, 1999, p. 696).

Furthermore, the specific empirical context of this thesis should be mentioned, that of sanitation. The social entrepreneurs, NGOs, international development cooperation organisations and governments involved in the paradigm shift in sanitation, in the Global South, show an increased interest in solving the problem of sanitation through market-based approaches (Diener et al., 2014), like Peepoople. These actors may benefit from widening their frames of the problem of sanitation, by actively acknowledging the need to scale the new ideas of sustainable sanitation, beyond technical solutions for the market, to new mind-sets and meanings of sanitation across all actors in the sanitation regime, especially those with needed resources. Indeed, previously, Hegger et al. (2007) have suggested that innovative concepts of sanitation require changes in sanitation practices at multiple levels and dimensions of the regime, especially in terms of new forms of social organisation in sanitation, to create transformative change.

Moreover, sanitation is inherently a socio-technical system and one of the most important radical innovations in human history, contributing to an epidemiological transformation, a significant decrease in death rates (Geels, 2005), when people, predominantly in the Global North, got access to clean drinking water and sewage systems. Insights gained from this specific empirical case of a socio-technical systems challenge, may be useful for social entrepreneurs in other contexts, in which radical bottom-up social innovations provided by social entrepreneurs are increasingly expected to contribute to solving complex problems, like those in energy, transport and agriculture, through transformative systems change (Nicholls & Collavo, 2018).

By highlighting aspects of the institutional complexity in the social innovation process, this thesis also contributes to increasing knowledge on the context of the Global South, where bottom-up approaches to social innovation, especially in design and delivery of public services is considered important for obtaining the United Nations' Sustainable Development Goals by 2030 (Millard, 2018; Eischler & Schwarz, 2019). More diversified studies have been called for in the Global South in terms of socio-technical transitions in relation to sanitation

and grass-root innovations [5] and "the dynamics of alternative and inclusive innovations", as current knowledge is dominated by welfare settings (Ramos-Meija et al., 2018; van Welie et al., 2018). In addition, the field of social entrepreneurship has been dominated by the Anglo-Saxon context (Sundin & Tillmar, 2010) although an increasing number of studies which focus on sustainability are emerging from the Global South (Picciotti, 2017).

5.4 Future research agenda

I suggest that future studies in social entrepreneurship may benefit from tighter links to social innovation and sustainability research, as well as from the use of multidisciplinary approaches.

Few attempts have been made to date, to explain the social innovation processes which social entrepreneurs engage in to transform society, especially with the help of the well-established framework of the multilevel perspective to sustainability transitions. This may be due to the dominance of theories and frames of reference from organisation and management studies influencing social entrepreneurship as a field of research and practice (Short et al., 2009, Gawell, 2014). Linking social entrepreneurship, social innovation and societal transformation, through the multilevel perspective (MLP) may be a fruitful endeavour for future research. The MLP can help to structure and untie some of the complexity and interdependences of different parts of societal systems, the social structures of the context in which social entrepreneurs enact agency by introducing social innovations. These structures pose challenges for the social innovation process which social entrepreneurs engage in and may hinder societal transformation, the essence of social entrepreneurship. To understand how transformative change can be facilitated, it is necessary to understand and incorporate multiple parts of the context. Social entrepreneurship literature has paid limited attention to context (Sassmannshausen & Volkmann, 2016) although understanding of the entrepreneurial process as context dependent is a growing research area in the field of "conventional" entrepreneurship (Zahra, 2007; Welter 2011; Korsgaard et al., 2015; Gaddefors & Andersson, 2017). Perhaps more attention could be given to context in social entrepreneurship,

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[5]"Networks of activists and organisations generating novel, bottom–up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved" (Seyfang & Smith, 2007, p. 585)

which often responds to context specific challenges and is conducted in contexts different from the "conventional" entrepreneur (Austin et al., 2006).

Some advantages can be found for research into social entrepreneurship of incorporating more extensively approaches, theories and methods from neighbouring social innovation literature, in which a much clearer focus on the transformation of structures and systems can be seen. Social innovation literature has also stressed (Westley et al., 2014: Westley, 2018) the need to change the institutional logics of multiple actors at multiple levels and scales, in order for social innovations to transform societies. Use of institutional theory and theories of institutional entrepreneurship could lead to richer understandings of how social entrepreneurs create transformative societal change.

The field of social innovation has also been suggested to be a driver of interdisciplinary and transdisciplinary scientific research in which epistemological and methodological approaches are in continuous development (Moulaert et al., 2013, p.13). With this said, and drawing on the benefits of multidisciplinary approach used in this thesis, I suggest that it may be useful to make use of the MLP in future research, as a metaframework, or as a heuristic tool (Geels & Schot, 2010). As a metaframework, it would allow space for different research questions, methods and theories of relevance for understanding parts of the multileveled transformative change which social entrepreneurs engage in. A metaframework broadens the problem framing of social innovation to include whole systems of production and the consumption of products, services and processes undergoing innovation, as called for by Smith et al. (2010). In these systems, social entrepreneurs play an increasingly important role, by providing solutions to the challenges of sustainable development. It also broadens the analytical framework, embracing a multiplicity of perspectives to understand the emergence and success of innovation (Smith et al., 2010) provided by social entrepreneurs, that of social innovation.

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Popular science summary

There is increased interest in the social and global problems of sustainability. Governments, the private sector and civil society organisations are searching for solutions to how the complex problems society faces could be solved. Within this sustainability movement, we also find social entrepreneurs. Social entrepreneurs are individuals, organisations, groups or networks which act entrepreneurially to solve social and environmental problems. They often apply business-like organising to accomplish their social mission. The entrepreneurial activity that social entrepreneurs engage in involves innovation, not only to make efficient use of the limited resources they have access to, in order to obtain their social missions, but also innovation in the products, services and processes they offer society. With these social innovations, social entrepreneurs aim to change the often unsustainable behaviours and practices of society. This implies creating transformative change in the human structures which constitute society. Many governments worldwide have recognised the potential which social entrepreneurship and social innovations have to solve problems of sustainability. There is an increasing number of governmental initiatives that support this sector with the aim of developing more ventures which create a positive impact of society, improving the well-being of people and the environment. However, many social entrepreneurs and social innovations fail to create change, and little is known why this is and how exactly some succeed in creating change.

The dominant ways to understand this change and how it can be created are economic. Success of social entrepreneurship and the process of social innovation that social entrepreneurs engage in are often understood in quantitative terms of numbers of social entrepreneurial activities, numbers of beneficiaries, numbers of geographical areas the entrepreneurial activity is scaled to and the impact of social entrepreneurship and social innovation in numerical terms. These kinds of economic and rationalist understandings provide rather narrow understandings of the change created by social

entrepreneurs and how a successful social innovation process of creating transformative change may happen. By incorporating the complexity of the social innovation process and the dynamics at play in this change creating process, this thesis provides an alternative take on social entrepreneurship and change.

In this PhD research project, a Swedish social entrepreneur providing a toilet solution to people lacking access to sanitation in an informal settlement in Kenya, was followed. The aim of the social entrepreneur was to rethink the toilet, in order to offer people with limited resources access to a dignified and clean means to dispose of human waste. The idea was that this waste could be used as fertilizer to improve the poor soils used for agriculture in the Global South. The focus during the first years of this research project was to understand how the users of the innovative toilet solution perceived the solution and how they framed the sanitation problem they were facing. In addition, the value the solution provided to different stakeholders involved in the design and implementation of the innovation was examined. The results pointed to the innovation being well appreciated and value-adding, especially to the local users of the solution. Nevertheless, the social entrepreneur went bankrupt after ten years of operation in the settlement. This raised questions of what could explain the failure of the social innovation and the social entrepreneur to continue operations and create change. Subsequently, in the later part of this PhD research project, the research focus shifted to understanding the failure of the social entrepreneur to create change.

Some previous studies have also highlighted the limited ability of social entrepreneurs and social innovations to create change. These critics have claimed that the limitations are grounded in the problem domain which social entrepreneurs attempt to solve, these problems are complex and reside in the deeper structures of society, as well as the social entrepreneurs' insufficient interest in other actors beyond the market, which may need to incorporate their novel ideas. By including into this research, the wider context in which the social entrepreneur was operating, the domain of policy was identified as an important, resisting factor to the social innovation. The findings lead to the suggestion that there is a need to understand the different dynamics of the dimensions of the context in which social entrepreneurs operate, in order to understand how the process of social innovation in which social entrepreneurs engage can create change that can transform the deeper structures of society. These dynamics consist of people who maintain and change the context and they should not be limited to the suppliers of the social innovations (the social entrepreneurs) and those intended to use the social innovation, but should rather include a whole

spectrum of actors, not least policy makers. This then leads to suggest that social entrepreneurs may need to build networks with resourceful actors in politics, policymaking and the public sector. The innovative ideas social entrepreneurs offer for solving societal problems need to be spread to higher levels of society and may thus require context specific adaptation in order to create policy demand and higher-level engagement with social innovation in society. Understanding a wider set of actors, requires knowing what their preferences, beliefs and values are, or alternatively their everyday actions, their practices. Knowing the "audience" offers an opportunity for the social entrepreneur to identify strategies through which it can change these beliefs, behaviours and practices to be in line with the social innovation. This kind of alignment may enhance the movement of the social innovation from a limited local setting to the wider society.

Moreover, the experiences of using narrow approaches from one field of research in the beginning of this research project suggest that multiple approaches in terms of methods and theories are needed to develop improved understandings of the change creating processes which social entrepreneurs engage in. The use of a single approach, like those focusing on economic understandings of the market used in the two first studies in this thesis, may imply action, in both practice and policy, that results in unfavourable effects of social innovation on the different parts of society. Alternatively, singular understandings of a complex phenomenon, like that of societal change, may simply result in unsuccessful social innovations when placed in a context, as the case in this thesis illustrates. Similarly, narrow approaches may lead to narrow practices, which favour simplified understandings of the problem at hand. Easy to grasp and compare understandings, like those obtained using numbers of beneficiaries of social innovation or the numbers of social entrepreneurial activities, come with a loss of understanding of the underlying causal explanations and more complete understandings of the problem domain, which underlie peoples' behaviour and practices, and how these can be changed through social entrepreneurial action.

To conclude, the current quest to solve sustainability challenges may benefit from more comprehensive understandings of the social innovation process, which social entrepreneurs engage in. To accomplish this, the research field needs theoretical frameworks and methods that capture the dynamics of multiple dimensions and actors at play in the change process.

Populärvetenskaplig sammanfattning

Det finns idag ett ökat intresse för social och global hållbarhet. Statliga aktörer, den privata sektorn och organisationer i det civila samhället söker efter lösningar på de komplexa problem som våra samhällen står inför. I denna rörelse finner vi också sociala entreprenörer. Sociala entreprenörer är personer, organisationer, grupper eller nätverk, vilka verkar entreprenöriellt för att lösa sociala och miljörelaterade problem. De använder ofta företagsliknande organisering för att uppnå sina sociala syften. De entreprenöriella aktiviteter som sociala entreprenörer engagerar sig i rör innovation, inte enbart i att bättre kunna disponera sina begränsade resurser, utan även i de produkter, tjänster och processer de erbjuder samhället. Med dessa innovationer vill sociala entreprenörer ofta ändra delar av våra samhällen som är ohållbara. Detta innefattar att genom förändring transformera de mänskliga strukturer som utgör samhället.

Många myndigheter världen runt har insett den potential som socialt entreprenörskap och sociala innovationer har för att lösa våra hållbarhetsutmaningar. Det finns ett ökat antal myndighetsinitiativ som stödjer denna sektor med målet att utveckla fler företag som har en positiv effekt på samhället – ökat välmående för såväl människa som miljö. Emellertid misslyckas många sociala entreprenörer och sociala innovationer med att skapa förändring och vi har bristande kunskap om varför och hur vissa lyckas medan andra misslyckas.

De dominerande sätten att förstå denna förändring och hur den skapas är ekonomiska. Här ser vi att framgången av socialt entreprenörskap och sociala innovationer ofta förstås och mäts i kvantitativa termer, såsom antal entreprenöriella aktiviteter, antal förmånstagare, antal geografiska områden som en verksamhet kan utökas till, eller numeriska mått på hur socialt entreprenörskap och sociala innovationer påverkar individer, företag och samhällen. Dessa synsätt ger en ganska smal förståelse för den förändring som

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sociala entreprenörer skapar och hur en framgångsrik social innovationsprocess för att skapa transformativ förändring kan ske. Genom att integrera komplexiteten i den innovationsprocess som sociala entreprenörer verkar i med dynamiken i denna förändringsprocess, erbjuder den här avhandlingen ett alternativt angreppssätt på socialt entreprenörskap och förändring.

I detta doktorandprojekt följdes en svensk social entreprenör som erbjuder en toalettlösning riktad till människor i icke-formella bosättningar i Kenya. Den sociala entreprenörens mål var att tänka om kring konceptet 'toalett' för att kunna erbjuda en värdig och sanitär toalett för hantering av avfall av mänskligt ursprung. Tanken var också att avfallet skulle kunna användas som gödsel för att förbättra undermålig jord och därmed användas i jordbruket i den Globala Syd. Under forskningsprojektets första år låg fokus på hur användare upplevde den innovativa toalettlösningen samt hur de såg på sanitetsproblemet som de stod inför. Utöver detta undersöktes lösningens sociala värden för de olika intressenter som var involverade i designen och implementeringen. Resultaten visade att innovationen var uppskattad och adderade värde; speciellt för de lokala användarna. Trots detta gick den sociala entreprenören i konkurs tio år från start. Detta väckte frågan om vad som kan förklara varför den sociala innovationen och entreprenören misslyckandes med att fortsätta skapa förändring. I den senare delen av avhandlingsarbetet, ändrades forskningen fokus till att försöka förstå varför den sociala entreprenören misslyckades med att skapa förändring.

Vissa tidigare studier har även de kastat ljus på den begränsade förmågan hos sociala innovationer och sociala entreprenörer att skapa förändring. Dessa kritiker har hävdat att begränsningarna grundas i den problemdomän som de sociala entreprenörerna försöker lösa; dessa problem är komplexa och residerar i djupare strukturer av samhället, tillika sociala entreprenörers icke tillräckliga intresse i aktörer bortom marknaden, som också behöver anamma deras nymodiga idéer. Det har i denna avhandling visat sig vara viktigt att inkludera den större kontext inom vilken den sociala entreprenören verkar, speciellt policy kontexten, för att identifiera vad som kan motverka social innovation. Upptäckterna tyder på att för att förstå den socialinnovationsprocessen som sociala entreprenörer ägnar sig åt för att skapa förändring, måste man förstå de olika mänskliga faktorer som utgör den kontext i vilken sociala entreprenörer verkar. Dessa faktorer skall inte begränsas till endast de som tillhandahåller sociala innovationer (sociala entreprenörer) och de tänkta användaren av sociala innovationer, utan skall snarare inkludera ett spektrum av aktörer, inte minst policy-skapare och den offentliga sektorn. Detta leder till att antyda att sociala entreprenörer kan behöva skapa nätverk med resursrika aktörer i den offentliga

sektorn, och inom politik och policy. De innovativa idéer sociala entreprenörer erbjuder för att lösa samhällsproblem behöver spridas till högre samhällsnivåer och kan därför kräva kontextspecifika anpassningar för att skapa efterfrågan hos policy samt engagemang för den sociala innovationen på de högre nivåerna i samhället. För att förstå en bredare grupp av aktörer krävs exempelvis kunskap om deras övertygelser och värderingar, eller alternativt, deras praktiker. Kännedom om "publiken" erbjuder en möjlighet för sociala entreprenörer att identifiera strategier för att ändra de olika övertygelserna och praktikerna för att samstämma dem med de sociala innovationerna. Denna typ av "samriktning" kan förhöja omfånget av den sociala innovationen från en väldigt begränsad, lokal kontext till det bredare samhället.

Dessutom har erfarenheten från detta forskningsprojekt visat att multipla angreppsätt i form av metoder och teorier behövs för att utveckla ökad förståelse av förändringsskapande processer som sociala entreprenörer engagerar sig i. Att använda endast en angreppsätt, som den som fokuserar på ekonomisk förståelse av marknaden, som i avhandlingens två första studier, kan innebära beslut, både i praktik och policy som resulterar i ofördelaktiga effekter av social innovation på olika delar av samhället. Alternativt kan singulära förståelser av komplexa fenomen, som de rörande samhällsförändringarna studerade i denna avhandling helt enkelt resultera i misslyckade sociala innovationer när de placeras i en kontext, som också är fallet i denna avhandling. På samma sätt kan begränsade angreppsätt leda till begränsade praktik, vilken reducerar förståelsen av problemet i fråga. Lättgreppbara och lättjämförbara förståelser, som de erhållna genom att räkna antalet förmånstagare eller antalet socialentreprenöriella aktiviteter och verksamheter, innebär förlust av förståelse av underliggande kausalitet och mer fullständig förståelse av problemdomänen som ligger till grund för människors beteenden och praktiker, och de sätt på vilka man kan förändra dem via socialentreprenöriell inverkan.

För att sammanfatta, den pågående strävan efter att lösa hållbarhetsutmaningar kan gagnas av mer omfattande förståelser av den sociala innovationsprocess som sociala entreprenörer ägnar sig åt. För att åstadkomma detta behöver forskningsfältet teoretiska ramverk och metoder som fångar dynamiken mellan de olika dimensioner och aktörer som deltar i förändringsprocessen.

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