

# EXPLORING THE SHARING ECONOMY IN ECONOMICALLY DISTRESSED ENVIRONMENTS

How Collaborative Consumption is changing the climate of the streets.

A review of the literature.

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## ABSTRACT

The Sharing Economy has changed the lives of millions around the world by creating them earning potential from their excess. This industry has minimally impacted the informal economy, especially in the context of a township in South Africa. Participatory design, and equality are of fundamental to successful ICT projects. This literature review explores the Sharing Economy (SE), the Informal Economy and the overlapping area. The themes of governance, the future and the marginalised in relation to the SE are discussed. Pertinent conclusions shine light on how best to implement the SE in informal, bandwidth-constrained contexts. We are left with a hope of the promise that the Sharing Economy has for the disadvantaged.

## CCS CONCEPTS

• Community Wireless Networks • Wi-Fi • Servers

## KEYWORDS

Sharing Economy, Informal Economy, South Africa, Disadvantaged, Hustling, ICT4D, HCI4D

## 1 Introduction

This literature review seeks to explore how Information and Communication Technologies (ICTs) can be used to stimulate economic activity in bandwidth-constrained and economically distressed contexts.

More particularly, the aim is to support the informal bartering, trading and exchanging of resources and skills by co-designing a platform with the community that is akin to various Sharing Economy (SE) models but is more aptly designed for bandwidth-constrained and economically distressed contexts.

The informal economy in South Africa is estimated to be sustaining 3 million jobs. Though being a major disruptor to many sectors, the Sharing Economy is yet to impact the informal sector society

meaningfully. [15] Currently, there is a great, and largely untapped, opportunity to use the skills, assets and social capital that exist within these contexts to change the future of the next generation. The missing ingredient is proposed by many to be the sort of collaboration that technology has enabled in the SE. [10,15,34]

The importance of this literature review is partly found in the success of SE companies such as Airbnb, Uber and Freelancer. These SE companies have revolutionised the earning potential for millions of ordinary citizens in formal economies across the globe. The three companies mentioned above were the first-to-market in the Sharing Economy for the sharing of homes, vehicles and digital services respectively.

Another, arguably more important, motivation for research in this context is equality. Equality of opportunity is fundamental to eradicating poverty. [11] Advocating for equal access to the technologies changing the world is of utmost importance to the author.

Occupants of economically distressed and bandwidth-constrained communities often cannot meet the criteria of existing SE platforms (such as owning a recently made car to drive for Uber) and are thus excluded by default. On platforms where they can create a profile, they are prohibited by a variety of other factors. These include it not being feasible for them to verify themselves entirely (which may require a PayPal account, email address and proof of residence) and the SE mobile applications are data-hungry. [9]

Furthermore, the current implementations of the SE are not designed to cater to the sort of collaborative consumption that takes place in bandwidth-constrained and economically distressed communities. Thus, they are excluded by design.

Access to a SE-like platform that is by the community, for the community, to meet the needs of the community seems to be a missing (and necessary) rung in the ladder people will use to one day climb themselves out of socio-economic poverty.

The prevalent issues of technological inequity, unequal opportunity and unending generational cycles of poverty all lie at the heart of this project. Thus, justice is of foundational importance too.

The focus of this literature review is on the two major and intersecting areas that both uniquely contribute to the project; they are:

1. The Informal Economy – and how it operates, particularly in the Ocean View township of South Africa.
2. The Sharing Economy – broadly split into the sharing of the intangible (skills, talent and services) and the tangible (houses, cars and the like)

We start with some background information surrounding the Project Context focusing on Unemployment and Poverty, Hustling on the Streets, the Ocean View Township and the iNethi project that was established there a few years ago.

The Informal Economy follows, with sections reviewing the literature surrounding contextualised ICTs, SEs and some theory behind Ownership and Transfer. These sections then lead to a plethora of information surrounding the Sharing Economy.

Initially, we break up the topic into the six major sectors of the SE: transportation, finance, consumer goods, space, personal services and professional services. [39] In each of these sections, we characterise the industry and the look at the factors that may limit or present opportunities for the informal sector in South Africa.

We then showcase the literature by the three themes which characterise the writings on the SE. The emergent categories are those surrounding the governance of the SE; those focussing on the future of the SE; and those which explore how the SE could impact the marginalised.

The final sections briefly incorporate how design thinking could aid the creation of a better SE. Papers from the ICT4D (Information and Communication Technologies for Development) field, and other studies are referenced to cement the importance of the community in the design process.

Following that are a few conclusions. This gives us a clear way forward for future work on using ICTs to stimulate economic activity within the informal sector of SA using SE-like implementations.

## 2 The Project Context

### 2.1 Employment and Poverty

Graham Paul suggested in 2006 [25] that the next generations of our country would inherit poverty as a result of the staggering unemployment crisis we were facing. Things are not looking much better fourteen years later with 29.1% of South Africans currently being unemployed [53]

Coherently with Pauls finding, our government has waged war on poverty since the establishment of our democracy in 1994. [62] They have done this by stimulating economic activity in the hope

of job creation, alongside, more direct employment creation efforts. Eradicating Poverty is also the first of the United Nations Sustainable Development Goals (SDGs) [55]

Technology, in its various forms, has been proposed as a way of achieving this goal. [22,23] Success in this area would result in a higher standard of living and a subsequent reduction in vulnerability of the poorest in a plethora of ways. [17,23,63]

The process of eradicating poverty looks like sustaining the livelihoods of vulnerable households by any means possible. Out of necessity, many people turn to hustle the streets to provide for their families. In the most unfortunate scenarios, in desperation, some even turn to illicit dealings in drugs, although this is often only part of the motivation [2]. The broader details of hustling are discussed next.

### 2.2 Hustling on the Streets

Hustling is the informal term for the exchanging of a seemingly limitless number of goods and services by individuals amongst their communities, often for economic survival. [60]

These transactions predominantly take place using digital platforms such as Facebook nowadays. The same study [60] suggests, as logic would have it, that the more successful hustlers have more extensive social networks – in both the virtual and the physical.

Unfortunately, there is a distinct lack of research done in the area of hustling, particularly in the South African context. The author speculates that this is due to the highly irregular nature of these sorts of transactions being difficult to study.

Street trading, the informal selling of a set variety of goods at specific locations, is a much better documented process in academic literature. Spaza Shops and vendors having been studied extensively in South Africa and abroad. [27,37,41] The findings of these studies draw some insightful conclusions on the informal economy as a whole but do not affect the content of this review meaningfully.

Some of the pertinent conclusions are as follows. Issues such as restricted access to seed capital, inability to buy in bulk and not being able to access information of surrounding businesses are prevalent. [45]

Another applicable point from these studies is a suggestion for those pursuing future ownership of a Spaza shop. They are advised to establish a clear vision for their store before they begin. In terms of ICTs, Mukwarami and Tengeh suggest that interventions are required to minimise transport costs and enable bulk buying. [38]

Street trading is essential to the livelihoods of locals. The extent of this trading in Ocean View (OV), the locale of our project, is currently uncertain. Irrespective, this review hopes to focus more on the less structured ‘hustling’, and hence, besides the above few conclusions, street trading will not be of primary importance in this review.

### 2.3 Ocean View Township

Under Apartheid, the South African government established the Ocean View township as the new location for those forcibly removed from the declared *White Areas* of two small fishing towns in the area (Simons Town and Noordhoek). [52] A township is a South African term for a collection of people living in a peri-urban geographic location.

Townships are known for their poverty, violence, lack of adequate infrastructure and few economic opportunities.[49] Despite this fact, they often result in a rich sense of community, spirituality and support according to Theron et al. [49]

It was estimated in 2014 by the World Bank that 60% of the unemployed population of South Africa resided in these settings. [33] Ocean View is no exception, and the resulting lack of purpose has bread OV an infamous name for itself with gang violence, drug deals and shootings being all too common. [19,48]

## 2.4 iNethi OV

Due to the lack of infrastructure and widespread poverty, many members of township communities have limited access to data. [24] The high cost of communication in Ocean View, [42] alongside some research done by a similar team in 2016 [26] (suggesting that users communicate predominantly with others in a small locality) lead to the establishment of the iNethi Community Wireless Network.

The iNethi (meaning network in isiXhosa) Model is deployed and managed by the board of directors. The OV COMM DYNAMIC as they so named themselves, were initially all residents of Ocean View. This team, alongside a few researchers [42], have set up local servers and multiple Wi-Fi hotspots through which the community can freely access a range of local resources.

These resources include a Chat Application (FireChat) and Social Network (Diaspora), File Storage (OwnCloud), Video Hosting (PhPTube) and a host of educational resources such as Wikipedia (in the major local languages) and Khan Academy.

This literature review seeks to establish the base of academic research needed to build an additional component onto the iNethi system. This component aims to help facilitate the informal economic activity on the streets by broadening connections and facilitating interactions.

Access to the internet via iNethi is also available by way of a voucher system. Users pay R20 to OV COMM to receive a one GB to browse the web.

## 3 Informal Economy

### 3.1 Informal ICTs in SA

It would seem that South Africa has not seen the same revolutions in our informal economy as other African nations. These include the successful launch of mobile money platforms, such as *M-Pesa* in Kenya [7]; the technological literacy growth of India [44]; and

the use of a USSD Directory service in rural farming operations that was explored in Tanzania.[16,56]

The seeming lack of breakthrough in SA's informal economy is not for lack of opportunity though. The following may have been ground zero for our country's technological breakthrough had things gone slightly differently.

The eThekweni municipality (effectively the greater Durban area) launched a similar mobile money platform to *M-Pesa* called *Muva* in 2011. The first phase was rolled-out on twenty-three busses in Durban's inner-city with plans to expand to trains and hopefully even taxis. [29]

A study done by Riana Steyn from the University of Pretoria over five years suggests that the previously identified barriers to the adoption of technology no longer exist for entrepreneurs in South Africa. [54] She proposed that technology adoption should instead move towards industry-specific applications.

In terms of ICT advancement in the agricultural field, over twenty-one-thousand households were surveyed in 2015. Grobler et al. found there to be a significant increase in agricultural production when people had access to an internet connection. [13] This is a very promising indicator for things to come.

The common factor across all of the international success stories is community involvement and, hence, buy-in. The possibilities are endless, but they need to be developed based on what real people experience in the informal economy in South Africa.

Currently, their experiences are defined by a far greyer form of ownership than is traditionally understood in the more formal setting.

### 3.2 Ownership Transfer & Sharing

Arsel published a summary article in the Journal of Advances in Consumer Research in 2010 detailing what he calls the "boundary conditions" of ownership transfer and shared ownership. [3] Practically, this is dealing with the overlap of the informal and the sharing economy. Roux furthers this idea by looking at how identity ties into our choice to buy second-hand clothing or not. [47]

Roux also expands on the work done by Williams and Riley et al., which suggests that clothing has an intimate link with our bodies and personal hygiene. [40,58] She then proposes that intimacy to be the reason for the disparity in opinion between those who refuse to wear second-hand clothes and those who relish the search for hidden gems.[47]

Arsel, now in his own work, explores the emergence of several new online bartering communities. [4] His findings on how these platforms mediate ownership transfer is detailed next, alongside other, similar works.

#### 3.2.1 Bartering Systems

Online bartering, borrowing and swapping systems come in many forms. Most use some kind of points or reputation system as a form of currency, whilst a few are entirely free to use. These sites attract people who own stuff they no longer want, and those who are looking for things but are not willing to pay retail prices.

Due to the frequency of exchange in these platforms, users don't fully see themselves as owners because of their intention to barter again soon. This satiates their need to variety. [4]

Rötheli suggests that monetary exchange is far superior to bartering. He based his finding on the statistical analysis of utility across eighty students from a German university [46]. Although convincing in his logic, this finding may not apply to informal settings.

In 2014, Lee, Hung and Chen wrote a research paper aiming to better understand the motivations of those who still chose bartering systems over monetary options. They found that users have more fun on bartering platforms. This was resultant from user expectations being met and their enjoyment of their newly acquired good.

Another one of these platforms, Freegan, is built around a "total boycott of an economic system" [21,43] Being a Freegan, as the participants are called, involves digging through trash, squatting in abandoned buildings and other strange practices.

Other platforms allow for the bartering of anything and everything. [64] A few notable items found were babysitters, books, games, favours and bicycles. Many of these platforms incorporate aspects of the SE too. [65]

A distinctive company on the outskirts of the bartering system is Shared Earth. They are a US initiative that connects landowners with gardeners and farmers. You can sign up to lend your land and tools in exchange for a portion of the resulting harvest. [66]

## 4. Sharing Economy

The Sharing Economy (SE) is an economic model based around peer-to-peer interactions without the transfer of ownership (although that factor is not held stringently in the following section). These interactions are generally governed by the individuals themselves based on guidelines set forward by the company. [6] The SE has been grown out of the idea that buying and owning things is outdated. [20]

The term collaborative consumption can also be used to describe SE initiatives. Botsman and Rogers popularised it in 2010 in their revolutionary book, *What's Mine is Yours* [18] in which they advocated for and largely predicted the rise of the SE. The term was however first used in 1978 by Felson and Spaeth. [8]

Platforms that utilise the SE simulate real-world trust with ratings (often in both directions, i.e. user rates the provider and visa-versa). [61] App-based payments are also often employed, for security and convenience. As a reward for creating the marketplace and facilitating the payment, the SE company usually takes a tiny percentage of every transaction. [8]

Although the SE had its roots in non-profit companies such as Freecycle and CouchSurfing, two non-profit, community-based platforms, these initiatives have mostly given way to the more well know conglomerates such as Airbnb and Uber. The former is an online community where people give away their old things, and CouchSurfing is a community of people willing for you to sleep on their couch while you travel. You can then return the favour by allowing a fellow CouchSurfers to visit you.

An offspring of the SE is the Gig Economy. [44] The Gig Economy offers companies the ability to hire a distributed workforce to process massive amounts of data. These services are sold by Gig Platforms (such as Amazon Mechanical Turk, AMT) to corporates for a fee.

For the money, the corporates gain access to millions of workers across the globe who complete simple microtasks for a pittance. The resulting, amalgamated data is then processed by AMT and returned to the corporation. The Gig economy will not be explored further in this review.

The SE on the whole also distinctly lacks platforms that are designed for assisting in the complex nature of the informal economy, especially in the South African context. Merely providing access to economically meaningful information, like an online directory service, is crucial to stimulating entrepreneurial collaboration and can improve economic activity and revenue significantly when effectively implemented. [51]

The four principles to ensure a functioning SE, according to Botsman and Rogers, are: 1) the idling capacity of people (i.e. how much stuff do they have to share – be it time, a bedroom or old clothes), 2) the level of trust between strangers within a community, 3) the ability of the SE to hit critical mass (i.e. gain enough people to make the platform attractive to use), and 4) users need to have a strong belief in the commons. [6,15]

With that framework in place, we will now briefly explore the six major areas within the Sharing Economy. In each of these sections, we characterise the sector by its main competitors and mention the factors that may limit this SE from impacting the informal economy in South Africa, alongside any opportunities or developments in SA.

### 4.1 Major SE Sectors

#### 4.1.1 Transportation

The transportation sector of the SE internationally includes well-known e-Hailing services such as Uber [67] but also consists of a few other exciting transport services.

These include the "Airbnb for boats", Boatsetter [68]; Turo – renting your car to strangers [69]; JustPark – renting your driveway as parking space in urban areas [70]; Zimride – a ride-matching service [71]; and more. [39]

A limiting factor in the transport sector of the SE is how few own vehicles who participate in the informal economy of South Africa. This, on the other hand, presents itself as an opportunity too. The

carpooling apps of Jrney, JumpIn Rides and CarTrip are all looking to gain traction in SA at the moment, with none really showing signs of inclusivity towards underprivileged users. [72–74]

#### 4.1.2 Finance

The finance sector of the SE does not seem to have impacted South Africa significantly yet. The leading players internationally are Zopa [75], LendingClub [76] and Prosper [77] – they deal with peer-to-peer loans, safeguarding people’s money while helping those who would have limited access to credit without them; TransferWise – they handle peer-to-peer international money transfers and are an innovative company that was birthed out of the complexities and expensive fees when sending money abroad traditionally. [39,78]

With traditional mechanisms such as Stokvels already being digitised [79–81], South Africans are poised to see growth in this sector as businesses evolve. Peer-to-peer money sending services such as Virgin Money’s Spot are also competing for consumers attention. [82]

#### 4.1.3 Consumer Goods

Freecycle, one of the non-profit trailblazers of the SE, started its journey off in sharing economy by encouraging people to give away their goods free of charge [83]. Now, Trove exists to ensure brands can manage their resale image too [84]. ThredUP is the world’s biggest online thrift store [85]. Tradesy specialises in the resale of designer bags and accessories [86], while *Bag, Borrow or Steal* does the same, but it also allows rentals of the same items.[5,87]

As mentioned by Dillahunt and Malone, users in disadvantaged communities may want to be independent of others and are thus unlikely to be willing to use others’ goods. [15] Also, the above names are targeting users who think second-hand goods are hip, not those who depend on them by necessity. A noble SE initiative that was launched in Cape Town is The Street Store. They have outsourced a model where people collect old clothes and then launch a pop-up store on a high-traffic street for a day. Homeless people can then choose what they want, as if shopping, in a dignified way. [88]

#### 4.1.4 Space

WeWork and Airbnb are the most notorious companies in the space sharing sector. They specialise in renting out professional and personal spaces, respectively [89,90]. LiquidSpace [91] and PivotDesk [92] are competitors to WeWork, and Tripping.com [93] and HomeAway [94] are variations of the Airbnb model.

Trust is the biggest limiting factor in sharing space for underprivileged communities studied in the US [15]. This is because of the high crime rates normally associated with low-income communities. This carries through to the formal economy in SA.

#### 4.1.5 Personal Services

TaskRabbit will link you up with somebody to help you out around the home [95]. Instacart will source someone to do (and deliver) your shopping for you [96], and Postmates will do the same for take-outs – controversially, even if the restaurant does not officially offer delivery services. [39]

This sector seems exciting for the informal economy, as many are willing to contribute the skills they have for extra income. Unfortunately, the demand for basic skills may not match up sufficiently to the supply. [15]

#### 4.1.6 Professional Services

Freelancer.com is an easy way to request professional digital services from thousands of freelancers around the globe. These freelancers place bids on requests, detailing their expertise and price range. When the buyer accepts a digital offer, a deposit is paid, and funds are released to the freelancer at every milestone of the project. [97]

Wonolo helps businesses onboard temporary employees in approximately twelve hours from an on-demand pool of high-quality, local workers. It provides skill-specific, flexible jobs for workers.[98]

Upwork, Fiverr and Crowdspring all have similar models to Freelancer.com, with the latter only specialising in creative design. [99–101]

Most people in the informal economy do not have the required skill sets to participate in this sector of the SE. Opportunities may arise for those who have access to technology and are creative though.

## 4.2 Thematic Analysis

Three themes repeatedly emerged in investigating the most prominent and recent academic papers written about the Sharing Economy. We begin with the governance of the SE, then the future of the SE and we, aptly, end our analysis with SE papers focussing in on the how it will affect the marginalised (as is a primary focus of this review)

### 4.2.1 Governance of the SE

The appropriate place to begin this section is with Marin et al. in 2017. [35] Due to the adverse impacts some of the major companies in the SE were reported to be creating [36], these researchers developed a rigorous framework for thinking about how best to govern the SE more democratically.

The advocates for democratic governance insist that their ideas, properly implemented, would result in SE companies that value the environment, the people the companies interact with, and the capitalist system, producing a win-win-win scenario. This argument is weakened by the significant challenges that such models would face. It would also be almost impossible to implement without new government regulations being enforced. [36]

The controversial media attention mentioned earlier was primarily directed at Airbnb. This was a result of hosts discriminating on who they allowed to rent their space based on race. The term digital discrimination was coined.

The media attention caused Airbnb to write up a new anti-discrimination policy in which they advocate for inclusion and respect wherever possible [1] Cheng and Foley took this opportunity to analyse some news article comments of the new framework and analysed it using text-mining and co-stakeholder analysis. [9]

The significant result of their efforts were two visualised networks, one of the stakeholders related to the controversy, the other of concepts surrounding digital discrimination. Their research involved over 200 digital comments, but only of a single news article.

This is a significant weakness in their study, as it limits responses to the thoughts only of the readers of the Guardian. Their visualisations, although giving high-level perspectives, also leave many unanswered questions about how the individual nodes relate to each other.

Another, separate viewpoint relating to the governance of the SE comes in an article by Williams and Horodnic from the University of Sheffield. They suggest that the growth of the informal sector, as a result of the Sharing Economy, is one of the SEs main negative consequences.[59] They evaluated the hospitality industry in Europe and Asia and reported back that around a quarter of the hotels and restaurants claimed to be competing against unregistered and informal operators.

The authors seem to have a significant bias against the SE though. This is evident by the above finding being the only justification of their recommendation – for the government to clamp down on the industry.[59] Although it is helpful to see as many angles on the SE as possible, the arguments made by Williams and Hordic for growth in the informal sector being negative are mostly unconvincing. What is convincing, on the other hand, is that the Sharing Economy has a bright future to come.

#### 4.2.2 Future of the SE

Participants in the SE have a stereotypical set of values attached to them. The most influential is self-transcendence, the pro-social belief that we are a part of something bigger than ourselves.

These values began with the founding non-profits of the SE, Freecycle and Freegle, and are still necessary for the conglomerates of today such as Airbnb and Uber. Martin, this time with Upham, wrote an academic article detailing how such grassroots innovations will go about mobilising citizens' values in the future. [34]

By the authors' admission, the above paper raises more questions than answers. [34] Sociologically, this may be due to people practices primarily informing their attitudes (as opposed to the other way around, as one might think). [50] That being said, the

values attached to the SE may prove vital to the sustainability of its business model.

Four students from the University of Lithuania published an article on the sustainability of the SE business model in the peer-reviewed *Procedia* in 2015. Besides reemphasising the prediction of the SE by Botsman and Rogers [6] that “the increasing ubiquity of social networking and real-time technologies is the most impactful feature driving the sharing economy” [12] they have barely strung together a paragraph without ambiguity and logical inconsistencies.

On the other end of the academic spectrum is a work by Jin, Kong, Wu and Sui whereby they paint a picture (based on the existing literature) of the future of the Transportation Sector of the SE. [30] This well-articulated paper also brings to light the dangers mentioned previously (of conceptual confiscation and methodological error).

The same paper, [30] details various issues that need to be handled effectively going forward. The first mentioned is their concern over digital discrimination, albeit not in as much depth as Cheng and Foley [9]. Importantly though, they suggest that the Transport SE may amplify the digital divide.

The positive impact of ridesourcing (e-Hailing, i.e. Uber and others) on economic efficiency is emphatically justified. Sociologically speaking though, the protection for prosumers (producers/consumers) against exploitation has not yet been sufficiently studied. [30]

#### 4.2.3 The SE for the marginalised

The marginalised have always been the ones who bear the brunt of exploitation. As with all problematic situations, some try to find solutions. This was the promise of the SE for disadvantaged communities described by Dillahunt and Malone. [15] Their paper set into motion the direction for this literature review.

Dillahunt had been asking similar questions for some time. For example, in an earlier paper [14] he posed, “How do people foster connections for employment in economically distressed areas?” His answer pointed him in the direction of the Sharing Economy.

Drawing on previous works to supplement their study, they contributed significantly to the HCI4D (Human-Computer Interaction for Development) literature. [15] Their methodology was sound, and their limitations were stated adequately.

Their contributions are identifying factors that contribute to the successful usage of the SE for underprivileged communities and suggesting mitigations to the shortcomings of the SE in these communities. [15]

A novel success factor that they proposed was the unwillingness of underprivileged user to trust technology. These same users had no problem trusting the people using the app, but rather the app itself. [15]

This factor can be overcome by using transparent design and communication techniques. Better understanding of how technologies work and which applications are available will also broaden the horizons of users and result in them being more trusting of technology.

To mitigate security concerns, they found that participants in their study desired to meet in safe physical spaces, such as police stations. This is especially necessary if locals do not see their community as being 'good' overall. [15]

### 4.3 Design Reflections

In the same study [15], the researchers implemented participatory design techniques with the underemployed and unemployed. The purpose of the workshop was to establish the viability of various SE applications in their respective neighbourhoods.

Leveraging cultural probes, role play and by utilising a combination of small group and large group discussions, their use of human-centred design is applaudable. Following in their footsteps is especially important when we as researchers are trying to understand entirely different experiences to our own.

In late 2018 there was an outcry by South Africans about the high cost of mobile data. [28] The situation has not drastically changed since. Due to this, in the iNethi context, the applications that run locally are more attractive to users as they are data-free. [32]

Designing new applications for the iNethi context with the community, has been highly prioritised in the participatory partnership that is at the foundation of the project. [32] Many users in the Ocean View context only own feature phones (mobile phones with basic internet capability) and this is one situation where designing a solution around their access to technology could enable them if done correctly, or isolate them if not.

Designing an application that is easy to use for digitally semi-literate users should be the aim of developers. A team from India developed a voice-based exchange for illiterate users. [57] This sort of innovation is necessary to create an inclusive SE.

## 6. Conclusions

In this literature review, we have examined the context of the iNethi network, acknowledging the turmoil and poverty of the township that is indicative of the unemployment levels in the country as a whole. Due to this context, hustling the streets to make ends meet is often where occupants turn. ICTs can and should be effectively employed to facilitate this kind of informal trading. [22,23,37]

The informal economy in South Africa has not seen some of the breakthrough of other African states. The author suggests that this is due to a lack of community-centred design. It was then found that the informal economy meets the sharing economy at the edge of ownership and transfers. [3]

This overlap is bartering, which has been given a breath of new life, with the internet springing up several new platforms. There is a disparity in view in the literature as to whether a monetary or non-monetary exchange is better, the former being argued as superior and the latter being argued as more fun. [31,46]

The Sharing Economy is then defined and explored. Whilst unpacking each of the six major sectors of the SE, we concluded that the SA informal economy has the potential for growth in the midst of the limitations found.

The governance of the SE was the first theme that was reviewed. Although some suggest that democratising the SE would result in an all-round win, it would require new government regulations.[35] A left-field view stating that the growth of the informal economy was a negative consequence of the SE was rebutted. [59]

A critical value which birthed the SE was found to be self-transcendence. [34] This is predicted to define the future of the SE too. Two papers were contrasted to display academic excellence and inadequacy. The former demonstrated the economic efficiency of the SE. [30]

The last theme explored of the SE was its impact on the marginalised. Dillahunt and Malone showed that, by using transparent design and communication, developers can invite users to trust their technology more. [15] Meeting in a safe place was another of their suggestions.

In closing, the author reemphasised the importance of Participatory Design principles, highlighting a particular scenario specific to the iNethi context.

There is still promise awaiting the disadvantaged in the Sharing Economy to come.

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