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Unlocking the sharing economy: Investigating the barriers for the sharing economy in a city context

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Abstract

The sharing economy has gained much attention recently as Airbnb and Uber are spreading across the world, but little is known about how to unlock the true potential of the sharing economy. As such, this study aims to unearth the barriers and challenges associated with the sharing economy platform environment in the city of Umeå, Sweden. The qualitative case study focuses on sharing economy efforts in the city of Umeå, a city characterized by high technical competency and world leading broadband connectivity, while having almost no activity in the digital sharing economy. The study identifies the barriers, pathways, and opportunities related to the sharing economy and how they apply to the city of Umeå. As such the study reveals the ways in which the sharing economy can help a city increase their digital density as well as making the city more attractive for those living in and traveling through the area.

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1. Introduction

Sharing resources is a not a new phenomenon (Kemp and Olson, 2015), but rather something mankind has always been doing. The term sharing economy is a broad concept that lacks a clear and commonly shared definition. The sharing economy is sometimes referred to as collaborative consumption (Botsman and Rogers, 2011) or access-based consumption (Bardhi and Eckhardt, 2012) or commercial sharing system (Lamberton and Rose, 2012). However, what is common among these terms is the emphasis on an efficient use of slack resources and how collaborative forms of consumption can be beneficial both for the individual users and for the society as a whole. The sharing economy can thus be understood as an umbrella concept that inv0lves digital technologies that endorse peer-to-peer sharing of goods and services through online platforms.

The sharing economy is largely market-based, allows resources to be used more fully, is based on crowd-based networks facilitated by platforms and, perhaps most significantly, blurs the lines between the personal and professional as well as between various forms of employment (Sundararajan, 2016). Even though the definition of the sharing economy is not clear, the fact remains that the impact of the sharing economy is huge and the public awareness of its importance is growing every year. Airbnb hosts around 425,000 guests every night and 44

percent of U.S. adults are familiar with the concept sharing economy (PwC, 2015). Recent studies show that around 25 percent of the population in the U.K. have used Internet technologies to share assets or resources in 2014 (Stokes, *et al.*, 2014). With the growing awareness of the notion of the sharing economy, it becomes clear that few industries and organizations are exempt from the potential impact the sharing economy will have on society (Belk, 2014).

The challenge many organizations are facing is how to cope with increasing the digital content in their products, services and processes. From the perspective of a city, it has been argued that it is crucial to design a city that is able to absorb, adapt and respond to changes (Desouza and Flanery, 2013) in order to cope with the challenges associated with growing urbanization. While digital technologies are recognized as key drivers of smart city initiatives (Chourabi, *et al.*, 2012) and as such hold the potential for a diverse set of new opportunities for citizens, these opportunities remain unclear. In this paper we argue that digital sharing platforms provide a way for cities to be more successful in their pursuit of a more attractive image. Digital sharing platforms hold the potential to help build a city that is not only smart but also attractive to live in and visit. However, extant research has paid little attention to this challenge. As such, we aim at providing insights on the barriers and opportunities related to the sharing economy in the context of a city.

In many cases high growth cities host an accelerated use of sharing economy platforms. However, Umeå, Sweden's fastest growing city, has very low usage and few actors when looking at sharing economy platforms (Visit Sweden, 2016). This is a potential problem for a city to remain attractive as sharing economy platforms provide opportunities to densify the digital content for locations or cities, thus enhancing the attractiveness for individuals and organizations in the city. Digital density in this context refers the number of connections in an area by people, employees, companies and others to the Internet. Against this backdrop, we investigate the barriers and pathways that are related to digital sharing platforms. Specifically, our research question is: What are the barriers related to the sharing economy in the context of a city and how can these be overcome?

The aim of this study is to unearth the barriers and challenges associated with the sharing economy platform environment in the city of Umeå and how such an environment can impact the image of the city. We believe that by revealing the barriers and challenges, it will be easier to uncover potential opportunities or areas that are not being utilized that can better the image of the city of Umeå. In order to answer our research question a case study will be conducted focused on the digital sharing economy environment in Umeå through a qualitative approach.

2. Related research

In order to provide a more complete picture of the research conducted on the sharing economy and digital platforms, the following section lays out the most important research on these topics.

2.1. The sharing economy

The digital economy refers to the ways in which increases in computing power, along with the decreased costs associated with adopting digital technologies, has led to a transformation of content production and distribution in many contexts (Holmström, 2015; Hsieh, *et al.*, 2012; Nylén, *et al.*, 2014; Sandberg, *et al.*, 2015; Yoo, 2010). As such, the term 'sharing economy' is a recent example of such a transformation of content production and distribution.

The sharing economy is a broad term and lacks a common definition (Felländer, *et al.*, 2015; Hamari, *et al.*, 2016). The concept is sometimes referred to as collaborative economy (Botsman and Rogers, 2011), access-based consumption (Bardhi and Eckhardt, 2012) and product service systems (Mont, 2002). Regardless of the definition, the mutual focus is on collaborative use of slack and poorly utilized assets and services, and how they can be used more efficiently. The sharing economy has become an appealing alternative for consumers that have had increased concern over climate impact and social embeddedness of local consumption (Hamari, *et al.*, 2016). The collaborative consumption is according to Botsman and Rogers (2011) an economical model based on sharing, swapping, gifting, trading or renting assets or resources. Their definition is quite broad and mixes marketplace exchange, gift giving, and sharing. A more specific definition is given by Belk (2014) who describes it as: "Collaborative consumption is people coordinating the acquisition and distribution of a resource for a fee or other compensation." [1]

In essence, the sharing economy is an economic system with emphasis on peer-to-peer

exchange and sharing of slack and unutilized assets or services for free or for a fee. Felländer and her co-writers define the sharing economy as:

> The Sharing Economy comprises the peer-to-peer exchange of tangible and intangible slack (or potentially slack) resources, including information, in both global and local contexts. This mediated exchange tends to reduce users' transaction costs by replacing third party intermediaries with digital platforms. [2]

The business models associated with the sharing economy are evolving because of two distinct trends (Dervojeda, *et al.*, 2013). The first trend is the technological advances that allow marketplaces and platforms to spread in ways not possible before, through the help of Internet and mobile technology. Streaming media services such as Netflix and Spotify are two examples of B2C-services where the costumer gets access to movies, series and music on their mobile phone or computer. The second trend is the shift where companies start marketing the individual's own slack resources to other individuals instead of only their own company resources. An online sharing platform allows the connection between a temporary need and someone with an unutilized asset and could potentially be used in any type of business or area.

With the use of mediated platforms the cost of ownership of a resource is lowered when sharing with others. Unutilized or unused assets have little or no value for the owner, and faced with the need of a resource, asset, or skill one must chose between buying/learning (acquiring) and renting/hiring (Kemp and Olson, 2015).

The acquisition of assets can be seen as inefficient in the long run while renting consistently can be considered as being too expensive for the customer. Acquiring an asset/skill and share it with others will create profit and reduce the ownership burden. Collaborative ways of consumption is often highlighted as a way to deal with societal problems such as overconsumption, poverty, and climate issues. There is however a lack of empirical evidence of understanding why people participate in the sharing economy (Hamari, *et al.*, 2016). A recent study with more than 90,000 individuals showed that convenience was the number one reason why people choose to participate in the sharing economy (Felländer, *et al.*, 2015). It is also notable that sustainability and local connection are relatively low factors involved in the sharing economy. The growing awareness of the environmental impact of our consumption is a societal driver that also drives the collaborative economy and is thus often associated with the collaborative way of thinking (Porter and Kramer, 2011). The need and curiosity of social interaction and communication is another societal driver that helps drive the trend of the collaborative economy.

Another factor that drives the sharing economy and the global recognition is the economical factors such as the increased sharing of idle inventory and unutilized assets, which give individuals the possibility to earn income and to a greater extent gain financial independence (Dillahunt and Malone, 2015). Digital sharing platforms and the digitalization of society encourages freelancing and micro-entrepreneurs in new ways while increasing financial flexibility. Another economical driver is the change of attitude where accessibility over ownership now increases, which is opening new markets focused on sharing of resources (Belk, 2014).

Finally, the rise of social networks (Constantinides and Fountain, 2008), smartphone penetration and technology (Felländer, *et al.*, 2015) as well as payment systems (Holmström and Stalder, 2001), are technological factors that have enabled and driven the acceleration of the awareness of the sharing economy. Trust is a key principle for the collaborative economy to function (Botsman and Rogers, 2011) as well as the other factors such as social networks, reliable payment systems, and rating functions all contributing to people gaining more trust in sharing resources (Sundararajan, 2016). The evolution of two-sided digital market platforms that support peer-to-peer communication are a core foundation for the sharing economy to function (Derojeva, *et al.*, 2013; Felländer, *et al.*, 2015).

While sharing resources is something mankind has always been doing, the growing discourse of the sharing economy is still at an early stage and most of the research available to this point is considered futuristic. As such, there is a lack of case studies of digital sharing platforms and the potential impacts and challenges related to them, while existent research is silent on how the sharing economy could enhance the density of digital content for a specific location.

2.2. Digital platforms

The concept of platform is very broad with diverse meanings and has gained attention in many different theoretical fields. The term platform has come to be related as a common design pattern, where a set of stable components supports variety and evolvability in a system (Baldwin and Woodard, 2009). Another definition of platforms is given by Tiwana, *et al.* (2010): "... the extensible codebase of a software-based system that provides core functionality shared by the

modules that interoperate with it, and the interfaces through which they interoperate." [3] The term platform is used in different ways, Thomas, *et al.* (2014) conducted a literature review on the platform field and identified four distinct research streams (see Table 1): *product family platforms* (Meyer and DeTore, 1999), *organizational capability platforms* (Eisenhardt and Martin, 2000; Teece, *et al.*, 1997; Winter, 2003), *market intermediary platforms* (Armstrong, 2006; Rochet and Tirole, 2003), and *technology system platforms* (Cusumano, 2010; Gawer and Cusumano, 2002).

A product platform is defined by Meyer and DeTore (1999) as: "A common design rules and implemented subsystems and subsystem interfaces that form a common structure from which a stream of derivative products can be efficiently developed and produced." [4] In this research stream the term platform is described as a way for a platform owner to move forward towards gaining market advantages with a new generation or products, or group of products.

In the second research stream, the *organizational capability*, a platform is considered a structure that stores an organization's capabilities and represents a collection of architecture of resources and capabilities that have been realized and deployed (Thomas, *et al.*, 2014). Technology does not have a central role but competitive advantage is rather achieved by organizational capabilities and adaptation to environmental demands.

In the third research stream, *market intermediary*, a platform is referred to as characterize products, services, firms or institutions that mediate transaction between two or more groups of platform agents (Rochet and Tirole, 2003). The platform and the interchange between multiple markets create value for the platform owner (Armstrong, 2006).

The fourth and final research stream identified by Thomas, *et al.* (2014) is the *technology system*, which is the broadest stream and echoes the underlying theoretical logics of the previous three streams. In this research stream, a platform is looked upon as the hub of a technology system and could also be referred to as platform based ecosystem (Tiwana, *et al.*, 2010). As such, platforms and ecosystems are closely related (Holmström, 2013) and platform based software ecosystems are currently emerging as a dominant model for software services (Tiwana, *et al.*, 2010).

Table 1: Research streams in platform research.

Research streams	Description	Key references
Product family platform	Common design rules and implemented subsystems and subsystem interfaces that form a common structure from which a stream of derivative products can be efficiently developed and produced.	Meyer and DeTore (1999)
Organizational capability platforms	Platforms is considered a structure that stores an organization's capabilities and represents a collection of architecture of resources and capabilities that have been realized and deployed.	Eisenhardt and Martin, 2000; Teece, *et al.*, 1997; Winter, 2003
Market intermediary platforms	Platforms is referred to as characterize products, services, firms or institutions that mediate transaction between	Armstrong, 2006; Rochet and Tirole, 2003

	two or more groups of platform agents.	
Technology system platforms	The platform is looked upon as the hub of a technology system and could also be referred to as platform based ecosystem.	Cusumano, 2010; Gawer and and Cusumano, 2002

Platforms define the way in which software is produced, distributed and changing the business paradigms of the software industry as well as the industries in which the platforms are immersed (Holmström, 2013). As such, firm-centric digital platforms such as Amazon and Apple's App Store have enabled the increasing growth of e-commerce and have changed the way in which physical and digital goods are being sold and distributed. The discourse of digital platforms is the research streams within extant platform research that is in dire need of increased attention from scholars, due to its increasing importance in society. At the heart of the sharing economy is the rapid advances in digital technology and the shift in consumer's behavior towards sharing assets with strangers and fostering a sense of trust and willingness to collaborate, which was born out of the early peer-to-peer marketplace platforms such as eBay, Napster and Wikipedia (Kemp and Olson, 2015).

While academic research focused on the sharing economy is very scarce, the literature could be divided into several subdomains (Teubner, 2014): *psychological basis of sharing and access contra ownership* (Belk, 2014; Bardhi and Eckhardt, 2012), *legal characteristics* (Kassan and Orsi, 2012; Guttentag, 2015), and peer-to-peer markets (Slee, 2013). To our knowledge, there is a gap in platform literature when it comes to digital platforms as well as how the sharing economy could potentially be used to increase the density of the digital content of a specific area or location, which potentially could be a way for a city to be not only smart but also more attractive for individuals and organizations.

3. Research methodology

In this section the research approach, case description, data collection, sampling techniques as well as the methodology used for the data analysis will be presented.

3.1. Research approach

The aim of this study is to unearth the barriers and challenges associated with the sharing economy platform environment in the city of Umeå and how such an environment can impact the image of the city. As such, it was decided that a qualitative strategy was the best way to look at the phenomenon occurring. Denzin and Lincoln (2000) describe qualitative strategy as research that locates the observer in the world through methods such as interviews, conversations and other means, in order to capture phenomena in its natural setting. This resonates well with our aim, as the aim is not to come to a conclusion that is quantifiable by using statistical methods, but rather to gain an in depth understanding of the events that are occurring [5].

Furthermore, as we wanted to find out why specific events are happening, and how actors perceive these events, a case study approach is used. Yin (1994) describes case study research as a research strategy approaching the object of study in its real life context when the division between the real life context and phenomenon is not clearly evident. This strategy was chosen not only because the study aims to describe this phenomenon but also as case studies have very little control over behavioral events and that the research has focus on specific events (Yin, 2009). Thus, a case study approach was relevant for this research focused at the specific case of the digital sharing economy environment in the city of Umeå, Sweden.

3.2. Case description

The case is focused on the digital sharing economy in the city of Umeå. We argue that the city of Umeå is an interesting case, Umeå being the twelfth largest city in Sweden with over 120,000 inhabitants and also Sweden's fastest growing city (Visit Sweden, 2016). Recently the sharing economy has shown a high level of growth across the world, but for Sweden it has been less developed. Furthermore it has been suggested that the public sector has been pushing for sharing economy ideas and that policies in Sweden for hosting such ideas are ahead of the curve.

Finally it is notable that Sweden has a high level of IT competency with a potential to grow even more in the sharing economy realm (Felländer, *et al.*, 2015).

When it comes to the established actors in the sharing economy such as Uber, Airbnb, Car2Go, Kickstarter and others, many parts of Sweden have caught on, but Umeå has seen little activity in this area. Of the larger actors, Airbnb is the only to have some activity in Umeå, while other actors such as sunfleet car sharing has seen some attention. The peer-to-peer side of the sharing economy has not yet been noticed, but it has some actors such as Baghitch or a local Umeå business Delbar.se trying to get into the game. As such, Umeå being a city with a high level of IT competency, infrastructure, growth and over 30,000 students, the digital sharing economy environment would be expected to be at large, but is instead almost non-existent.

3.3. Data collection and sampling technique

During the data collection phase and sampling phase of the research, many different techniques were used in order to provide stronger and more accurate data. The data collection consists of primary data through the use of semi-structured interviews done in a face-to-face manner. The use of semi-structured interviews allowed for probing into specific questions as well as occasionally changing the order of the questions depending on the responses from the interviewee [6]. Furthermore, during the process of interviewing, questions not present in the interview guide were asked that helped further the discussion, making it more interactive as well as helping towards answering the research questions at hand. The interview guide was adjusted slightly from interview to interview depending on the role the person had, as well as new questions added in order to get better data saturation. On a couple of occasions, the interviews were also followed up by phone or email when further questions or clarifications were needed.

The use of face-to-face interviews was done at the interviewees place of work to make the interview situation more convenient for them, but also allowed for more detailed information to be gained, by providing access to data from expressions and surroundings, as well as being able to build a connection with the interviewees helping towards further sampling [7]. In total there were seven interviews conducted, all of the interviews were audio recorded after gaining permission from the participants. The interview subjects were gained first through purposive sampling by looking up individuals that fit specific criteria containing municipality employees that would be familiar with sharing economy initiatives. Furthermore other criteria contained subjects from the business side with the role of digital strategists that influence sharing economy or digital platforms. The final criterion was that all subjects would be professionally located in the Umeå area, as the case is specific to the city of Umeå. This process then evolved into snowballing with the same criteria, but by asking the interviewees who they knew that may both fit the criteria and be interested in participating [8]. These types of purposive sampling allowed for both easy and faster access to participants as well as securing subjects that have greater knowledge of the research area (Bryman, 2008). All interviewee's job roles and duration of interviews are listed in Table 2. The interviews lasted between 36 minutes to an hour of recorded time as well as about 10–20 minutes of discussion before and after that were crucial to building connections with the interviewees, as well as collecting further data that was not collected during the more formal session.

Table 2: Job roles and interview duration.

Interviews	Job role	Duration
Interviewee 1	IT strategist	45 minutes
Interviewee 2	Marketing	36 minutes
Interviewee 3	VD technology company	60 minutes
Interviewee 4	IT strategist	45 minutes
Interviewee 5	Digital strategist	55 minutes
Interviewee 6	Communications	40 minutes
Interviewee 7	Co-founder/CFO sharing platform	60 minutes

3.4. Data analysis

For the data analysis the tradition of grounded theory was adopted in order to provide a deeper analysis to the research questions presented (Strauss and Corbin, 1990). Grounded theory allows for a more unique analysis as the data collection process and analysis occur simultaneously (Giske and Artinian, 2007). After the data was collected, in the form of audio recorded interviews, they were transcribed and translated into English including time stamps enabling us to go back and check both versions. The analysis process occurred directly after transcription and consisted of open coding after the very first interview was completed, followed by a focused coding and the generation of key categories (Charmaz, 2001). After every interview was completed and analyzed using the grounded theory process, the interview guide was updated and adjusted in order to gather more data on the key categories previously found and in order to get closer to theoretical saturation (Strauss and Corbin, 1990).

The decision to use grounded theory came as the digital sharing economy and its connection to transforming a location has little to no prior research, and this method provides for flexibility while also putting the data at the center of attention.

4. Results

In this section, the empirical results are presented. As such, a distinction is made between the barriers related to the sharing economy and towards the pathways and opportunities presented.

4.1. Barriers to realizing the sharing economy in the city of Umeå

Trust can come in many different forms, and according to all respondents in the case study it seems to be a major component and a key aspect in the sharing economy in order to make it work. Specifically, trust between individuals seems to be a condition for the sharing economy to exist at all. As respondent one is highlighting when elaborating on the sharing economy and why people choose to participant in sharing economy activities or not:

> "For me, the sharing economy all boils down to trust. And in a world with low trust it becomes harder." (Respondent 1)

On the same topic, all respondents talked about the challenges related to sharing goods and facilities and emphasizes the role of trust as a precondition for the sharing economy. For example when someone has made use of a building owned by the city they must have the ability to contact someone responsible for the building if something has gone missing or has been destroyed. This goes hand in hand with a statement from the respondents who see the potential of all the unutilized facilities and buildings that the city owns. Schools and sports facilities are two examples of assets that are being unused more than they are being used. The issue the city is facing is that some people working at the locations are unwilling within their job role to take responsibility outside of their working hours to let someone gain access to the facilities outside normal hours. Another aspect is the risk and responsibility aspects associated with exchanging goods, using someone else's asset or riding in someone else's car. Respondent three explains this:

> "But really I could, but I'm not really interested in money in that way, I rather lend out the cabin in the mountain, trailer or snowmobile ... If I receive payment for lending out the snowmobile and someone borrows it and kill themselves on it, it's my responsibility. But if I just lend it out the risk is on them." (Respondent 3)

The sharing economy is built upon trust and the willingness of individuals to trust one and each other but the question regarding responsibility goes hand in hand with trust. Respondent one describes the personal relation to Uber taxi.

> "Personally? I would never in my life go in an Uber taxi. Never in my life! I trust in 2 or 3 taxi companies. It's like, put myself in a car with someone else, are you completely crazy!? It can be any crazy person at all!" (Respondent 1)

The quote above highlights how the unknown and lack of control can be a barrier of trust but there are also respondents talking about the possibilities the sharing economy and digital sharing platforms actually can provide options to solve these type of challenges. Respondent three

explains how digital services has helped companies front themselves as trustworthy, where there is a rating-system and the fact that money transactions are handled through an application or platform are two major components for its success.

> "I think trust for what I have ordered for all the digital services has gone up. If I take a private taxi or rent a cabin from someone. I think they have added a lot. It's almost that you trust Uber more than a regular taxi company. At least compared with an unknown smaller taxi company." (Respondent 3)

Another area that is a major component and key aspect for the sharing economy to function are the numerous rules and regulations, some of which may make it easier, but many more that hinder the spread of a sharing economy. When it comes to a city, generally their actions are chosen for reasons to promote wellbeing and growth among other things within the sector, but as respondent three highlights:

> "For a city it is very hard to promote something that is built on a tax-free movement ... and for them to promote things like Airbnb could go against what a city should deal with, a city wants to have its tax revenue because that's how it can grow, so these digital sharing platforms could be a contradiction to that." (Respondent 3)

As many of the respondents pointed out, the sharing economy a lot of times is built from a point that people can rent equipment from their neighbors privately or through a sharing platform instead of going to a rental store that has to pay taxes and follow certain regulations that the government enforces. Both the completely tax-free method of loaning and renting out privately and the digital version where taxes may be collected somewhere in the world, cause some sort of revenue loss to a city. Another issue that arises when using such a platform is that a percentage of the sale is usually lost going back to the platform owner, which more often then not is a large company that is not local. Respondent two and others highlight:

> "If everyone starts using these digital sharing platforms for renting equipment, taking a taxi, or all the millions of sharing economy services and the things coming up, that those companies take 10–15–20–30 percent, and that money all disappears from the north, impacting the local economy." (Respondent 2)

This means that a certain percentage of the transactions and flow of money are leaving the city, region or even the country, meaning that there is not just a loss in money leaving the region and money not going to local stores or service providers, but also that the tax that could have been earned from those gains is lost. Some of the respondents explain that the loss of tax and the impact on local companies are major reasons strict restrictions and laws exist towards such digital sharing platforms. Respondent one explains:

> "I am a little afraid that there will be more and more depletion of local actors and businesses and in the end it will be franchises under the big actors that take over and all the money will be sent to tax paradises not staying in Sweden or even Europe." (Respondent 1)

Here respondent one goes on to discuss that even with the restrictions and laws in place that the big platforms find their ways around the restrictions and it is more a matter of time. The respondents explained that at the same time that the city has trouble promoting the digital sharing environment, local businesses are getting taken over by such platforms causing them to also push for harsher regulations that in turn will help their businesses.

The respondents also discussed how the politics, culture, resources and pace impact the move towards a digital sharing environment, whether it be an internal or external move. When going towards a new initiative it usually comes down to the politics and where the politicians stand when spending money or distributing resources. As respondents one and four said:

> "To get any initiative started then it needs to go up to the politicians and it gets passed around and often not something they prioritize ... they look at it more as a cost then anything else ... really it requires that they give out the initiative." (Respondent 1)
>
> "It is really slow to get things to happen ... many steps and people to go through and rules/laws." (Respondent 4)

Here the respondents showed how the many processes and actors within cause there to be

countless barriers in order to drive an initiative towards a digital sharing platform. These actions cause things to take a substantial amount of time for something to get from start to finish when comparing to a business or private party. The respondents explained that the laws and regulations are even stronger for them at times, causing things to take even longer to finish.

The culture of public entities is very different from that of the private sector. How long initiatives take as well as the general process of change is very different in the public sector in comparison to the private, as respondent five explains:

> "The willingness to change is a lot less in the public sector in comparison to private and companies. If you are a prime minister or city director it is not the same as being a CEO at a company and handling quarterly reports etc. ... That we see as a big challenge." (Respondent 5)

The respondent went on to explain that companies or a CEO have the ability to make a change in the path they are going and is thus more likely to dare to make risks in order to reap the benefits. As such, the city is more constrained and is less likely take large risks with taxpayer money. This is part of the reason many platforms in the public sector are far behind as well as why the development often takes more time in this context. Furthermore when achievements happen in the public sector they are often long-lived and too much hype and attention are given to them. Respondent five states:

> "For the politicians what is digitalization? Many are very content that we have successfully gotten broadband to the level it is and think they have done their job." (Respondent 5)

When pushing for new digital platforms and initiatives the success of broadband is often looked at as the end of the road and that the further digitalization will be solved on its own. Finally when looking at sharing resources internally or between other public entities there is often the question of who owns what? Respondent four explains:

> "It is the school themselves that don't want to share their unused resources, and no one else should come in and set requirements for them." (Respondent 4)

The awareness of what the sharing economy means is increasing, but the concept was not household for all of the respondents during the interviews. This lack of awareness and clear understanding of the concept could be seen as a barrier towards a wide penetration of the sharing economy in the city. The notion of sharing is of course nothing new, as one of the respondent pointed out and continued with explaining that Umeå has a long tradition of sharing and organizing such as flea markets, clothing libraries, and others without digital technology. The sharing economy is however an economic system based on sharing assets or services where digital technologies are an essential factor for scaling and growth, which were not possible before. Another aspect of awareness, which digital technology has great potential to help cope with, is how to display and connect individuals and help raise awareness of all the unutilized assets available in a specific location. Respondent four discusses the fact that many citizens in Umeå have no idea what facilities are vacant and available to rent.

> "Many citizens in Umeå do not know that the facilities are empty. And that is something we definitely have to solve. That is also one political aim: that we should increase the use of our facilities. Just that we close our schools during summer. Why? Well, that's because we always have done so." (Respondent 4)

Another aspect that may hinder a more effective penetration of the sharing economy and is related to the unawareness in the society is the Catch-22 challenge, with the need of an established and dense network in order for the sharing economy to function frictionless. However in order to establish a big network you need many active actors within the network. And since it's vital that the network of actors and assets are rich and dense these challenges are hard to cope with. Both respondent one, four and seven pointed out that Umeå as a city is relatively small area and that may be a challenge and a barrier for digital sharing platforms to choose to establish in Umeå. A small market will hinder the development of a sharing environment and looking at the major international actors in the sharing economy such as Uber, Airbnb and various other sharing platforms, the market is rather scant. Respondent three pinpointed this, and the personal challenge with acquiring a specific resource at a certain time, which ultimately drove him to buy that specific resource to avoid having spent time chasing that resource during the times he actually needed it.

> "Then you can't get one either, and then the rest of the year there is plenty and when you need them there is none, and in the end it comes down to 'time is money'. I can't keep going around like this, should I take off work in the middle of the week to loan/rent a trailer to drive off my stuff, it costs me a half afternoon free from work, so f*** it, I bought a trailer." (Respondent 3)

As well as proving the importance of a big network in order to get a hold of the specific asset when needed, the respondent continued explaining that he had no interest in sharing due to the fact that it was associated with time-consuming tasks. Respondent two also highlighted the personal situation as a factor of why they didn't participant in any sharing activities:

> "Do I go crazy for an online platform for sharing clothes — no I don't think so! I have my favorite clothes that I want myself ... I have a certain situation that I don't really need to do that, I can sell on second hand and so on, that is completely ok." (Respondent 2)

The necessity of not having to participate in the sharing economy is a barrier that has to be overcome, but it can be hard to identify and communicate the incentives for some individuals to do so. As pointed out above, the personal situation could mean that some individuals don't need to participate for financial reasons and one of the respondents claimed that Umeå as a city has rather low unemployment rates relative to other larger cities in Sweden and that would lower the incentive for people to participant in the sharing economy in Umeå.

As a final barrier for the sharing economy to function smoothly within the context of a city, the fact that people in general are reluctant to change and often do things as they always have done, is a major challenge. All respondents touch upon this subject and two of the respondents explained that they would rather use hotels.com when booking an accommodation when traveling rather than one of the new digital sharing platforms, just because they are used to it and have positive experiences from it. These factors don't only apply to the personal side, but as mentioned earlier, organizations and companies also struggle with the challenges of culture and doing things like they always have. Respondent four touched upon how schools and municipalities are slow to adopting change, while both respondent five and six describe the challenges for larger organizations to pivot and adopt changes due to the complex nature of the organization.

4.2. Pathways and opportunities

The section above revealed the respondents insights regarding the barriers of the sharing economy in the city of Umeå. Overcoming those barriers could potentially lead towards various opportunities and pathways towards further developing the digital content and promoting Umeå as a place to be. Beyond those, this section focuses on additional pathways and opportunities for Umeå not mentioned in the section above.

The city of Umeå has for a long time been not only best in Sweden, but also world leading, when it comes to high speed Internet and access for the citizens. Almost all respondents highlighted the importance of this successful initiative and acknowledged this as one major factor for the growth Umeå has had the past couple of years. Umeå as a city is working towards the image of a modern IT city, which is partly built on the argument of the access to a world class Internet as well as the close relation with the university. The importance of a well function digital infrastructure is thus not only a precondition but also an opportunity for Umeå to increase the digital content in the area.

One of the respondents elaborated on the rich culture existing in Umeå where trying new things and the willingness to take risks is characteristic for Umeå. This culture is a factor that works to Umeå's advantage when it comes to adopting new digital sharing services. Umeå's politicians are, according to respondent two, very keen on investing in culture and using facilities more efficiently.

While many respondents discussed the barriers to having a digital sharing economy included the need to think locally and sustain internal growth, they also explained how it could be used towards building a tighter community and answering the problem of taxes and money flowing outwards. One thing the city has already been working towards and thinking of is a local digital sharing platform so that individuals and organizations can gain access to vacant buildings through designing an app for smartphones. As respondent four states:

> "Today for an event you need to make many calls to book the location, people, police etc., but what we would like is all of this to

> be synced in one platform on your mobile device." (Respondent 4)

The respondents mentioned that the app is just the start but the potential for sharing more than just vacant building is very large, and within local thinking to make things in Umeå much easier to access and coordinate.

The respondents also mentioned other local ideas arising, such as companies like Delbar.se and Versafit where peer-to-peer sharing and the sharing of various sports activities and training centers are available. Such local ideas and companies arising will help keep taxes and money flows local, instead of large actors coming in and taking over. Respondent three describes:

> "I would rather pay more money to support local actors ... Another option is some sort of local franchising of these sharing economy platforms so that more taxes and flow of money stay here." (Respondent 3)

Other respondents went on to describe that some sort of franchising or local entrepreneur is needed to drive the growth of such platforms through marketing it, but also making it match the local culture and mindset.

Finally, when it comes to local thinking, multiple respondents described that the use of open data has a huge potential, to see what is important locally and what resources are needed in the city. Respondent four states:

> "It is invaluable. We have so much damn data in this city that we do not take advantage of. To be able to develop a sharing economy, among other things." (Respondent 4)

Respondent 4 went on to say that the uses of having this open data are endless, although currently it is difficult to gain access and they are trying to find ways of releasing the data and finding out the best way to do so.

5. Discussion

In this section we will discuss the results from the study to answer the research question: What are the barriers related to the sharing economy in the context of a city and how can these be overcome? The term sharing economy is gaining attention both in a practical manner as well as by scholars, however there are still barriers to overcome for the concept to really be household in society. We found several barriers associated with the emergence of the sharing economy in the city of Umeå that are specific due to the cultural and geographical aspects of Umeå. As such, we argue that by increasing the digital sharing environment in Umeå that not only will the digital content increase, but it will help build the smart city and create an overall better image for those visiting and living in the city.

5.1. Barriers

The barriers we identified that need to be overcome in order for the sharing economy to function frictionless in Umeå are: trust, rules and regulations, level of awareness, network issues, necessity and change. The specific barriers we identified in our case study of Umeå may not seem unique by the general nature of these key barriers, but the culture and geographical aspects cause these barriers to affect Umeå in a way that may only be comparable to other cities with a similar culture, geographical aspects and size.

In relation to extant research, this paper confirms the results of Botsman and Rogers (2011) who highlighted the importance of trust as a key principle for the sharing economy to function. Trust is the heart of the sharing economy and the barrier of trust is crucial to overcome for the success of the sharing economy in Umeå. Rules and regulations have become a highly charged topic in the sharing economy literature, whether it protects the participants or restrains the affected companies (Hartl, *et al.*, 2015). There are examples of areas that actively support certain sharing initiatives while there are many examples of cities that have taken action towards digital platforms. Umeå is no exception, but Umeå is also government by the rules and regulation that exist for Sweden as a whole. At the moment many of these regulations have a negative influence on the emergence of the sharing economy and is a reason why the Swedish market for various sharing economy goods and services is less developed than elsewhere in Europe. As such, while the public sector in Sweden is ahead of the curve (Felländer, *et al.*, 2015) municipalities and cities struggle with adopting sharing economy platforms. Our findings show how the city of Umeå

is keen on increasing the usage of the city facilities. As such, while there is a widespread awareness of the potential of all the unutilized resources available on the city level, many decision-makers do not see any reason to promote external solutions to increase the usage of city facilities.

As the findings show, many politician are satisfied with what has been done in terms of broadband access in the city and believe either that the digital expansion is finished. As such, there are ongoing initiatives towards the sharing economy, and many initiatives are starting to work around the old model of procurement and skipping the various approval processes, but the lack of visions among politicians remain one of the key reasons why sharing economy initiatives fail to emerge.

Even though the awareness of the sharing economy is growing, there is still a general lack of knowledge towards the term in Umeå. Our findings are in line with other research on the sharing economy, which state that the overall awareness and understanding of the concept are in general low (Burnett, 2014). This unawareness of the sharing economy concept serves as a barrier for the sharing economy to really gain increased attention. In addition, the notion of the sharing economy is not household and people may not consider themselves part of the sharing economy while borrowing their neighbour's goods or sharing a car ride even though they basically are participants of the sharing economy.

Literature on the sharing economy holds that the increasing urbanization and densification of the population helps smooth the friction of the sharing economy (Sundararajan, 2016) and as mentioned, the general awareness of the sharing economy in Umeå is still low, leading to the fact that Umeå also needs to cope with the challenges related with a small network and market. The density of products or services offered in a digital sharing platform has to be dense enough so that people actually get what they want when they need it. Even though Umeå is one of the fastest growing cities in Sweden, our finding shows that Umeå's market is still relatively small, resulting in this serving as a barrier for the sharing economy. Another barrier for the sharing economy in the city of Umeå we identified was the lack of need to participate in the sharing economy due to private reasons such as financial and convenience. In addition, the necessity to participate in the sharing economy in Umeå is not that high is due to the fact that there is one of the lowest unemployment rates in the country, which may result in a lower need of part time, extra jobs, or income from renting out resources. The final barrier identified was the reluctance to changing habits and the way people are used to doing certain things. Accommodation is an example of a sector that showed difficultly in changing patterns. However, one of the greatest challenges when discussing the obstacles associated with the emergence of the sharing economy, concern the fact that all barriers are so closely related and intertwined to each other. This intertwined relationship means that in order to overcome one barrier other barriers need to be overcome at the same time.

5.2. Pathways and opportunities

Our findings reveal that the use of digital sharing platforms is almost non-existent in the city of Umeå, making it even more important to find ways to change this. The first step in finding pathways and opportunities related to the digital sharing economy is finding ways to overcome the aforementioned barriers. The main pathways and opportunities include; infrastructure, culture, local thinking and open data.

Many of the barriers presented exist due to either the lack of effort to overcome them or the disregard to notice their existence. Areas such as rules and regulations and awareness can be seen as tightly intertwined. The responses from the respondents revealed that often times rules and regulations had to do with politicians or others involved in creating such rules and regulations as having a low level of awareness or IT competence when it comes to sharing economy in general, as well as how it can positively impact society. Thus it can be seen that creating awareness on the phenomenon can also help overcome such of rules and regulations.

The infrastructure in the city of Umeå is often seen as being world class with about 78 percent of the population having access to at least 100mbps Internet speed, but still is an area that is being underutilized and not taken full advantage of. Felländer, *et al.* (2015) and Constantinides and Fountain (2008) describe how digital social networks, smartphones, payment systems and other platforms have enabled the acceleration of the sharing economy. The combination of having this precondition that is unutilized is in itself a huge opportunity for the digital sharing economy to grow as well as help the digital content in Umeå increase.

Umeå presents itself as having a culture with a young generation, a tech city with a high digital competence, sustainability thinking, and the willingness to try new things. The culture in Umeå represents a prime opportunity for a digital sharing economy that is described by both respondents and literature. The fact that many citizens are willing to try new things also helps

fight the barrier of change. Some of the respondents did admit having trouble changing certain ways of doing things, such as booking housing, but on the same note almost all of the respondents admitted they have used some sort of digital sharing platform in their personal life, showing a willingness to try new things. One thing to take into consideration is the lack of major international sharing economy actors in the city of Umeå.

In the sharing economy literature its been argued that convenience is the number one reason why people participated in the sharing economy while sustainability and local connection are relatively low factors (Felländer, *et al.*, 2015). Our findings show the contrary, we see local consideration and mindset as an important aspect in Umeå. Many respondents described that they see Umeå as a city where people like to choose local services when possible and people want to support the local shops and make sure that the money and taxes also stay locally. These results are in line with Hamaris, *et al.'s* (2016) study of participation in a digital sharing platform. Their results do however show that the participation is motivated by several factors such as sustainability, social and economic gains but they also showed that sustainability might only be an important factor for people who already believe that ecological consumption is important. The city of Umeå has a history of sustainability and a progressive mentality, which combined with the rich tech culture are possible pathways for Umeå to take advantage of in advancing sharing economy solutions. We see this as a major opportunity for local actors working on the idea of starting their sharing platforms in the city of Umeå, such as delbar.se and Versafit. Having local actors in the sharing economy domain will also be a way to gain more awareness around what the digital sharing economy is and make it easier for other actors to join.

Another pathway to a more effective digital sharing economy that we were able to find is the usage of open data. This area was one that a majority of respondents discussed as having an endless potential. We argue that by gaining access to open data, a digital sharing economy can be more effective in taking advantage of the resources that individuals, companies and organizations need the most available when they need them.

We argue that an increasing number of digital sharing platforms will successively help each other, and by increasing the digital content more people will be aware of the potential in the unutilized assets in their vicinity and thus further expanding the network. This build-up of a larger network is directly connected with the idea of increasing the digital density in a city where more people, companies and platforms are connected to the Internet providing content to each other. In so doing so is not only creating opportunities for future digital content and a smart city but also making it easier for others to join such a market making it more attractive from both an internal and external perspective. As such, we argue that the notion of a rich digital density is a concept cities should strive for in order to present itself as not only smart but also attractive to live in and visit. With digital density we mean the amount of digital content in a specific area and the number of users connected to that content through the Internet. Increasing this digital density would mean readily information on resource availability, a larger database of open data, and a path to faster digital developments, all leading to the growth of such digital density, creating a more efficient and effective city. Echoing Belk's (2014) point that few industries are exempt from the potential disruptive impact of the sharing economy, we argue that this is true not only for industries but also for cities. As such, we are likely to see major changes in the future and it would be folly not to adapt to new collaborative ways of consuming and sharing assets.

6. Conclusions

In this paper we investigated the barriers for establishing the sharing economy in the city of Umeå, and provide pathways or suggestions on how to overcome them. Based on our findings we argue that the barriers for establishing the sharing economy in the city of Umeå are: trust, rules and regulations, awareness, network capability, necessity and reluctance towards change. These barriers have hindered the penetration of the sharing economy in the city of Umeå and we argue that by highlighting them it will be easier to understand the potential pathways and opportunities associated with the sharing economy. As such, Umeå's main pathways and opportunities include infrastructure, culture, local thinking and open data. The presence of digital sharing platforms is almost non-existent in Umeå even though the city has great opportunities to adapt this new trend due to its image as a tech city and its high digital competence. Moreover, we argue that the sharing economy and digital sharing platforms have great potential in increasing the digital density of a city and thus making it not only smart but also more attractive for individuals and organizations.

'Sharing is caring' is a traditional proverb that businesses and public organizations can learn a lot

from. The sharing economy has arrived, and it's changing the way that customers behave. Businesses and public organizations have to adjust to this, and so does cities that want to be hospitable. For example, an increase in out-of-town visitors to a neighborhood induced by a high concentration of Airbnb hosts can benefit local restaurants. An increase in tourism caused by greater affordability and range of short-term accommodation could benefit a variety of stakeholders in the tourism industry. As such, we argue that our study contributes with valuable knowledge to the sharing economy literature on the topic of digital sharing platforms and their impact in the context of a city.

The findings we present does however suffer from some limitations as we only investigated three major actors, responsible for driving the growth of the city: the city of Umeå, businesses operating in Umeå and actors from Umeå University, which means that we overlooked other stakeholders. Hence we believe that additional studies on the barriers for establishing the sharing economy in a city context, with a wider demographical spread of the respondents, would be interesting to gain a better understanding of such barriers. Further avenues for future studies could also be focused on the impacts digital sharing platforms in the context of cities of different sizes to obtain further information regarding the role of digital platforms in society.

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Notes

1. Belk, 2014, p. 1,597.

2. Felländer, *et al.*, 2015, p. 19.

3. Tiwana, *et al.*, 2010, p. 675.

4. Meyer and DeTore, 1999, p. 65.

5. Strauss and Corbin, 1998, p. 11.

6. Ritchie and Lewis, 2003, p. 111.

7. Ritchie and Lewis, 2003, p. 92.

8. Ritchie and Lewis, 2003, p. 94.

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