Exploring Dimensions of Sharing Economy Business Models Enabled by IS: An Australian Study

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Abstract

Over the last decade, the Sharing Economy has developed rapidly to become a significant source of market disruption. However, multi-disciplinary research into the phenomenon is constrained by uncertainties about its focus, scope and even what activities the term "Sharing Economy" refers to. This paper's research aims are to address those constraints by clarifying concepts and terminology to afford meaningful discourse and impactful research. We do this by developing a Sharing Economy Diagnostic (ShED) for categorising companies and organizations who participate in platform-based sharing that is enabled by Information Systems. Within the Australian Sharing Economy, Information Systems occupy the sweet spot, being located at the intersection of demand for different types of market behaviours and enabling those demands by bringing market groups together in ways that are facilitating and creating new business models.

Keywords Sharing Economy, IS transformation, business model, Australia, platform

1   Introduction

As a source of market disruption, the concept of the Sharing Economy is deceptively simple: instead of purchasing goods and services from corporations, customers acquire them from each other. That concept is challenging conventional customer and company behaviour. Demand for services from the Sharing Economy (also known as 'collaborative consumption', 'gig economy', 'on-demand economy' and 'rental economy', Roberts 2015) is growing exponentially. In the US, 44% of adults, an estimated 90 million people, have participated in its services. In five years one firm, Uber, increased its value to more than $60 billion to become the fastest-growing start-up in history (Time 2016). Global revenues from the Sharing Economy in five key sectors (travel, car sharing, finance, staffing, and music and video streaming) were estimated to be $15 billion in 2014, predicted to grow to $335 billion by 2025 (PwC 2014, 2015).

Part of the explanation for this rapid development is seen in its general appeal as an alternative to the self-serving focus associated with competitive business behaviours. As acknowledged by Porter and Kramer (2011), there is increasing momentum towards economic exchanges that incorporate societal values and are more embedded in communities (Porter & Kramer 2011). These authors see a growing necessity to reconnect business and society where their mutually dependent relationship has been, 'lost in an age of narrow management approaches, short-term thinking, and deepening divides among society's institutions' (Porter & Kramer 2011, p. 77). There is an increasing interest in reclaiming community and personal values that have been marginalized in the trend toward globalization.

In addition to community values the Sharing Economy is a potential pathway to increased global sustainability. On 25th September 2015, 193 nations unanimously resolved to implement the United Nations Sustainable Development Agenda comprising 17 Sustainable Development Goals for the period 2016-2030. Section 67 of the UN resolution speaks directly to business; "We call upon all businesses to apply their creativity and innovation to solving sustainable development challenges" (UN SDG 2015, s.67). Furthermore, as a source of dynamic innovation and value creation, the Sharing Economy can contribute to sustainable values through sharing rather than increased consumption (Sundararajan 2016). In less than ten years, the Sharing Economy has developed sufficiently to be a potential contributor to global sustainability. However, researching its further development is constrained by uncertainties about its focus and scope, specifically what activities are involved and how the term "sharing" is defined.

In response to the emergence of the Sharing Economy and the necessity for business to respond to solving challenges to sustainable development, the IS research community has undertaken initial explorations of issues and implementations, (e.g. Alvital et al. 2014, 2015; Kim et al. 2015; Matzer et al. 2015; Trang et al. 2015) but is yet to address and refine the concept as a whole. A comprehensive understanding of the Sharing Economy and the role of IS in its successful development, particularly in addressing the global challenges in sustainable development, is required.

Therefore, this paper presents an initial effort to develop a landscape perspective of the Sharing Economy in Australia and to explore what IS-enabled activities are involved in its success. This paper's research aims are to: 1. contribute to the multi-disciplinary research program on the Sharing Economy by clarifying concepts and terminology to afford meaningful discourse and impactful research activities; and 2. develop a Sharing Economy Diagnostic (ShED) for categorising companies and organizations who participate in platform-based sharing based on the nature of sharing activities facilitated and the level of platform intervention in sharing transactions.

2   The Sharing Economy

The multi-faceted complexity of the Sharing Economy necessitates a multi-disciplinary approach to its analysis. The following literature review includes perspectives from: economics, labour, information systems, government (policy), law (regulation), management, marketing, organisational studies, sociology and transport. These multiple perspectives are necessary because the concept of "sharing" is an old one, and yet its relationship to the notion of of "economy" is somewhat ambiguous.

The term "sharing" can be conceptualised in three main ways in the context of the Sharing Economy. The first is closely associated with the sharing of links, photos, status, personal updates, activities that are constitutive of what is commonly described as web 2.0. The second meaning of sharing is in economic terms where the production and consumption of goods are shared (John 2013). The final meaning of sharing is associated with intimate personal relationships where emotions and ideas are shared. IS-enabled businesses acting in the Sharing Economy are usually associated with the first two meanings of sharing. Thus the Sharing Economy can be bounded by two dimensions "1) their use of

temporary access non-ownership models of utilizing consumer goods and services and 2) their reliance on the Internet, and especially Web 2.0, to bring this about" (Belk 2014, p. 1595).

From a consumer perspective the Sharing Economy allows individuals and groups to create shared value from underused assets. In this way, physical assets are shared as a service to other participants. For example, a car owner may allow someone to rent out her vehicle while she is not using it (PwC 2015). From an economic perspective the Sharing Economy may be seen as early instances of a future in which peer-to-peer exchange becomes increasingly prevalent, and the "crowd" replaces the corporation at the centre of capitalism' (Sundararajan 2016). The Sharing Economy thus decentres the current practice of purchasing expensive assets and using them for a small amount of time (Munger 2016). For example, in the US, more than one trillion dollars is spent each year purchasing cars, both new and used. Those cars have a utilization rate averaging 4% with 20% occupancy (Sundararajan 2016). Facilitating ride sharing services on demand would greatly increase the economic efficiency of transportation while substantially reducing the number of cars required (Sundararajan 2016). Hence the potential of the Sharing Economy for improving sustainability in the transport sector is recognized by several authors (Abraham and Mohen 2015; Cohen and Kietzmann 2014; Heinrichs 2013; Matzler et al. 2015; Roy et al. 2015).

Within IS research the Sharing Economy recently gained increasing research interest (Alvital et al. 2014, 2015; Puschman & Alt, 2016, Sach and Veit 2015, Veit et al. 2014). One interest by IS researchers is taking a behavioural perspective setting out to develop a deeper understanding of the motivations for participation in the Sharing Economy (e.g. Kim et al, 2015; Matzner et al. 2015). Other studies have focused in their investigation on particular aspects of the Sharing Economy, with mobility being a sector receiving particular research attention (e.g. Cohen and Kietzman 2014; Tan et al. 2015; Trang et al. 2015).

Efforts have already been made to group and categorise organisations that are considered to be part of the Sharing Economy. This is most commonly done by industry. Owyang (2014) for example has created a *Collaborative Economy Honeycomb* that groups organisations under the core categories of *money*, *goods*, *food*, *services*, *transportation*, and *space*. Additional categories on the periphery are represented under *learning*, *health and wellbeing*, *logistics*, *corporate*, *utilities*, and *municipal*.

There are advantages to such a sector-level categorisation. For one, Owyang's model shows at a glance which organisations are operating in a particular industry and facilitates a sense of the level of activity and competition in each sector. It is also relatively simple to assign a new organisation to a categorical group – all that needs to be understood is what kinds of artefacts the organisation is concerned with. This simplicity is however linked to a limitation in the sector-level approach to differentiating the Sharing Economy and it does not open up space for considering how IS enables these business activities differently. Often, what is different and innovative about Sharing Economy organisations is how they use technology to connect customer groups, yet industry level categorisation does not create space for further investigation of these technological aspects of Sharing Economy business models.

We argue that a sector-level categorisation taxonomy is therefore not well equipped to consider how organisations are connecting market groups and what value the organisation is offering to the consumer, beyond the general product category to which the business relates. In this paper we thus highlight how participants in the Sharing Economy can be differentiated by the business models they employ. Several authors have emphasized that the Sharing Economy involves new types of business models (e.g. Cohen and Kietzman 2014; Lampinein et al. 2015; Matzler et al. 2015; Putschman and Alt 2016) that have the potential to disrupt existing industries. As the Sharing Economy makes extensive use of so called disruptive technologies, it is important to recognize that new emerging business models are central to this:

> Flight and fight are two knee-jerk reactions to disruptive technologies. Flight would constitute such actions as diversifying out of the industry, while fight reactions are exemplified by those exhibited by the music, film, and publishing industries by invoking IPR [intellectual property right] to attempt to stave off the Sharing Economy. The results of these fights have been poor and keep these industries from embracing new technologies and profiting from them. The creative destruction of old business models and the adoption of new creative ways of participating is a third strategy. (Belk 2014, p.1598)

Thus business models become a lens through which we can begin to develop concepts and a vocabulary that will enable researchers to better distinguish similarities and differences in the growing number of self-proclaimed Sharing Economy organisations.

3   Research Approach

To fulfil the research aims of this paper, we assessed the business models of organizations selected from among the self-proclaimed Sharing Economy companies operating in Australia (Table 1). The Australian market has considerable experience with Sharing Economy companies but limited information has been published about those activities. Airbnb has been operating in Australia since 2009 with more than 66,000 listings. This is estimated to represent about 12% of commercial accommodation in the most populous state (New South Wales). Ride-sharing in Australia commenced with Uber's launch in 2014. Statistics on Australia as a whole are not available but the annual market for ride sharing services is estimated at more than $500 million annually or 10% of the annual revenue for the taxi industry nationally. Australian-based Freelancer claims 19 million users with annual revenues of $40 million. Comparing with the US Sharing Economy, about 0.4% of US adults actively work through a peer-to-peer platform (less than 0.5% of Australians) and approximately 1% of adult Americans actively earn on a platform (less than 0.7% Australians). However, the Australian market is thought to be developing quickly, with Uber drivers growing more than 300% in 2015 (Grattan Institute, 2016).

	Company	Location	Description
1	**Air BnB** www.airbnb.com	International	Makes it possible for people to rent out space to travelers and temporary residents to make money and offer a more personal travel experience.
2	**Airtasker** www.airtasker.com	International	A wide range of services can be fulfilled by local contractors, who can be chosen according to ratings and reviews. The platform assists with quality control through payment and insurance regulation.
3	**CoSeats** www.coseats.com	National	Offers noticeboard where people who want to save money and travel together can find each other.
4	**Eat With Me** www.eatwithme.net	National/ International	A non-financial service that allows people to post notices so they can meet to share a meal with our members in their area
5	**Etsy** www.etsy.com/au	International	An international online marketplace, primarily for home made and vintage goods.
6	**Find a Car Park** www.findacarpark.com.au	National	Owners of unused car parking space can lease the space to drivers who need one in that area.
7	**Freecycle** www.freecycle.org	Local/ International	Encourages environmentally friendly practices of giving away household items that are not being used.
8	**Freelancer** www.freelancer.com.au	International	A way to hire freelancers to complete design and word processing projects; platform offers different models of bidding and supports different payment structures.
9	**Givit** www.givit.org.au	Local (QLD)	Acts as a "virtual warehouse" where registered charities can signal the items that are needed for specific people and local members of the public who have these items can offer to give them through drop off or pick up.
10	**GoGet** www.goget.com.au	National	Offers residents of some cities access to cars that are parked in "pods" near their homes through a subscription service.
11	**Gumtree** www.gumtree.com.au	International	An advertising site for people wanting to sell, buy, and give away goods and services in a specific area.
12	**Help Me With It** www.helpmewithit.org.au	Local (Brisbane)	A subscription volunteer service in Queensland based on establishing a sense of community.
13	**HiPages** www.homeimprovementpages.com.au	National	Home owners looking for a tradesperson in the area are matched with three service providers who pass on their quotes for the project that is posted on the site.
14	**Mad Paws** www.madpaws.com.au	National	Bringing pet sitters and pet owners together, with an emphasis on sitter profiles and reviews.
15	**Modsie** www.modsie.com.au	National	Luxury fashion items can be sold and bought, the platform supports authentication and payment/postage process.
16	**Open Shed** www.openshed.com.au	National	Facilitates local access to tools and utensils owned by neighbours, through visible displays and with payment and insurance support.
17	**PopUp Brands** www.popupbrands.com.au	National	Retail spaces that are otherwise empty can be leased for short terms by retailers, potentially as a collective.
18	**Society One** www.societyone.com.au	National	A financial service that uses a patented algorithm to match lenders and investors; the platform supports calculation of interest rates and execution of payment schedules.
19	**Sydney LETS** www.communityexchange.net.au	Local/ International	A Community Exchange that allows members to trade their time and skills using a fictional currency, ideologically opposed to mainstream borrowing and lending practices.
20	**Uber** www.uber.com	International	Offers geo-matching between driver and passenger, facilitates transactions, reviews and ratings.

Table 1. Purposively selected Sharing Economy organisations in Australia

To address the research aims of better understanding the dimensions of Sharing Economy business models, our research design included: 1. a review of relevant academic and business literature; 2. a

search of self-proclaimed organisations in the Sharing Economy in Australia and 3. qualitative analysis of those organisations to derive ShED. The academic literature revealed a range of publications on aspects of the Sharing Economy and also on approaches to analysis of organisations, however we found that these distinctions were often made on industry lines (e.g., transport; accommodation; etc.). Consistent with the research scope, the search criteria focused on identifying organisations with a diversity of approaches across a range of sectors. To facilitate comparison with international experiences, several international organisations in the Australian market were selected, as were the international leaders Airbnb and Uber.

Analysis of potential candidate organisations was undertaken to ensure a broad diversity of approaches and experiences was available for further analysis. This analysis was based on elements of each organisation's Business Model Canvas (BMC) (Osterwalder and Pigneur 2010). Details on particular BMC elements were collected to differentiate and categorise the organisations. BMC analyses considered the full range of BMC elements: value propositions, customer segments, customer relationships, channels, activities, resources, partnerships, costs and revenues. Source details were identified from company websites, including reviews where available, and from searches of news items on the organisations. The initial group of organisations purposively selected (Miles and Huberman 1994) as self-proclaimed contributors to the Sharing Economy was reduced to 20 organisations as these displayed the diversity necessary to support detailed analysis (Table 1).

4   Differentiating Business Models in the Sharing Economy

The Business Model Canvas provided a starting point that led to our exploration of alternative dimensions in business models in Sharing Economy organizations. We found that while contextual details such as customer segments varied according to industry, there was a significant overlap between the remaining elements of the BMC categories. In particular, the "channels" that we identified as playing a role in the 20 organisations canvassed involved a consistent combination of website, email, mobile phone application, SMS and various social media channels. There were some slight variations in these combinations but most organisations employed a number of such channels. The "channels" aspect of our analysis revealed little that would allow us to make distinctions about the role of IS in Sharing Economy business models. The cost structure was also mostly consistent, as we deemed that website maintenance, legal fees and personnel costs were the main expenses for platform-based Sharing Economy organisations. Revenue streams too mostly were consistent, relying upon a service fee or on-site advertising. Key resources mostly revolved around member databases, software infrastructure and brand. On the whole, these BMC categories did not offer much in the way of data that would allow us to distinguish between business models.

There was however more variation in customer relationships and key activities. We therefore concentrated on these categories and we have considered how, in tandem, these two categories underpin each company's value proposition. Taking a grounded approach, we have thematised the role that *the platform* plays in bringing together the two parties that are needed for sharing to occur in Sharing Economy businesses. As a result, we propose that there are three ways in which the IS platforms that underpin these organisations intervene in sharing activities. In increasing order of level of intervention, we propose that IS-enabled Sharing Economy platforms act as a: 1) meeting space 2) market place and 3) matchmaker. Secondly, we found that the nature of sharing activity made possible by these interventions varies however this variation is not industry-dependent. We therefore suggest an alternative model for differentiating and categorising business models in the Sharing Economy, that takes into consideration both the IS-enabled *platform role* and an analysis of the *sharing type* offered.

First, we consider the IS-enabled platform's role in the organisation's business model. By this we mean, how is technology used *to connect* the various groups that the organisation services (e.g. provider and consumer)? Secondly, we consider the kind of *sharing* that the organisation is facilitating. In putting forward these two dimensions for consideration, we argue that both are important aspects of differentiating business models in the Sharing Economy.

4.1   Business Model Dimension: Platform Role

The first dimension, "platform role" has been split into three as the result of an inductive analysis from the Business Model Canvas analysis of Sharing Economy businesses in Australia. We found from this analysis that there were three main ways in which the platform intervened in the transaction between two parties brought together by the Sharing Economy organisation.

Sharing Economy organisations tend to exploit technological infrastructures in order to connect participants – usually two – who then engage in some form of shared activity (Tan et al. 2015). The IS-enabled platform can be involved in facilitating this connection and activity in multiple ways. We propose that there are three main ways in which the platforms that underpin Sharing Economy organisations facilitate sharing activities between groups of users. In increasing order of level of intervention Sharing Economy platforms act as a: 1) meeting space, 2) market place and 3) matchmaker. We offer a brief description of these three IS-enabled *platform roles* as follows:

1) **Meeting Space**
   - A noticeboard that facilitates connection and communication between network members
   - IS infrastructure enables platform roles of *enabler and moderator* of information that is of mutual interest to network members, through posts, reviews, profiles, commenting and contact capabilities
   - Platform acts as a relatively *passive third party*
   - E.g. CoSeats.com, givit.org.au

2) **Market Place**
   - A trading arena that facilitates transactions between providers and consumers of goods/services
   - IS infrastructure enables platform roles of *caretaker and referee* of transaction between two groups of network members through facilitation of payment, insurance, and by mediating disputes
   - Platform acts as an *intermediary* and is *passive* or *active* depending on circumstances (e.g. dispute)
   - E.g. Airtasker, AirBnB, MadPaws

3) **Matchmaker**
   - A brokering service where two parties are put in touch according to needs and capabilities (including matching perceptions of value, temporal availability and spatial location)
   - IS infrastructure enables platform roles of *broker and coordinator* of interaction between two parties through assessing needs and capabilities and linking these through targeted matching and deal negotiation, sometimes including algorithmic negotiations (e.g. interest rates, price surging)
   - Platform acts as *active mediator* in interaction
   - E.g. HiPages, SocietyOne, Uber

We do not argue that these methods of facilitating interactions are exclusively the domain of organisations self-identifying as belonging to the Sharing Economy. Rather, these three descriptions of differing *platform roles* are offered to facilitate a more nuanced discussion of how Sharing Economy business models differ from and relate to one another and the kinds of roles that IS infrastructures are enabling in this arena. We argue that differentiation by platform role, (i.e., the level of intervention) draws attention to the emergent and differentiating qualities of IS-enabled platforms, without restricting or prescribing what kind of technology (channels) or programs (resources) are involved.

4.2   Business Model Dimension: Sharing Type

We now draw attention to the *sharing activities* that such platforms facilitate. We are inspired by John (2013) who summarised three types of sharing activity: 1) sharing as distribution/allocation, 2) sharing as mutual ownership, and 3) sharing as communication. We have adapted these categories to create the three following distinctions of *sharing type* suitable for facilitating a more nuanced categorisation of the Sharing Economy:

1) **(Re)distribution of goods/space/time/ideas**
   - E.g. *share a piece of pie*
   - E.g. Gumtree
2) **Mutual access to goods/space/time/ideas**
   - E.g. *share a room*
   - E.g. Air BnB
3) **Communication**
   - E.g. *share your feelings*
   - E.g. Eat With Me

Sharing type 1: (Re)distribution is a fairly rudimentary sharing activity. John (2013) characterises distribution or allocation as a basic form of sharing, and points out that such a sharing activity can be considered a zero-sum game. For illustration's sake, when a piece of cake is allocated to Mary, there is less cake to offer the remaining children at the party. We include the prefix of "Re" to acknowledge that in Sharing Economy business models, the goods, space or time that is being shared is already in circulation; that is, goods in particular are not being created or produced but are being passed on, thereby mobilising value that may otherwise have been latent. In this sense we offer a gentle challenge to the notion that sharing type 1 is always a zero sum game, however we leave this point open for future discussion.

Sharing type 2: Mutual access is a more sophisticated form of sharing, because it requires a more complex relationship between sharers, as granting mutual access to goods, space, or even time requires negotiation and an element of risk. For example, sharing a room implies that two parties can gain value from their consumption of a single space, however such an arrangement requires an agreement of how each party will conduct themselves, so that one does not infringe negatively on the other's experience of the space. While John (2013) uses the term "mutual ownership", we have adapted this to "mutual access" to better capture the way in which Sharing Economy organisations facilitate opportunities for otherwise latent goods/space/time to be accessed by others without a permanent transfer of ownership. For John (2013), this second type of sharing is not a zero sum game, because two people can share an idea or space for example without necessarily precluding others from taking part in the sharing activity. Obviously in many circumstances, there are upper limits to scale at which goods/space/time/ideas can be shared, and these may be a factor in the success of Sharing Economy organisations' business models.

Sharing type 3: Communication is in some senses both the simplest and the most sophisticated form of sharing. This form of sharing is not tied to a physical artefact and yet it is constitutive of social relationships (John, 2013). To share how one feels, or to share an experience, is important to developing a sense of community. We therefore argue that including communication as a form of sharing allows us to consider how Sharing Economy organisations account for a social need, where part of the value they offer to consumers is the opportunity to connect with others, in the pursuit of a sense of community. In the following we show that communication may be a by-product of other types of sharing activity. For example, a platform might facilitate mutual access to a lawnmower that is owned by a neighbour, but in the act of collecting the lawnmower, communication between neighbours may occur. In that some Sharing Economy organisations advertise this experience of connecting with community as key offering, we argue that the sharing type *communication* can be considered part of the business value proposition of some Sharing Economy organisations, and that this element therefore warrants consideration in a diagnostic tool that facilitates differentiation and categorisation of IS-enabled Sharing Economy business models.

5   A Sharing Economy Diagnostic (ShED) for Categorising IS-enabled Business Models

These two dimensions of *platform role* and *sharing type* can be combined into a diagnostic tool which enables comparison of IS-enabled Sharing Economy business models. *Platform role* most strongly relates to the customer relationships and key activities categories of the BMC. The *sharing type* is also represented in these categories as well as the company's value proposition. We now show how the two dimensions of *platform role* and *sharing type* can be brought together in a matrix, which we use for mapping differences in IS-enabled Sharing Economy business models. We propose that this matrix can be used to diagnose similarities and differences in Sharing Economy business models beyond simple sector-level diffetentiation. It is intended primarily as a tool to facilitate multi-disciplinary communication about and analysis of emerging types of Sharing Economy business models and we do not claim that these dimensions are exhaustive or final.

Figure 1 shows the 20 Australian Sharing Economy organisations we analysed categorised according to the way in which the platform intervenes in the transaction (platform role) and the type of sharing that is emphasised in the business value proposition (sharing type). In some organisation's cases, we determined that there is both a primary and secondary business emphasis, either in relation to the platform role or in relation to sharing type. In these instances, a single asterisk denotes the primary placement of the organisation, and two asterisks denotes the secondary position on the matrix. For example, AirBnB has been placed in the centre square because it is primarily a Market Place for Mutual Access (to space). However, we also acknowledge that a secondary aspect of the AirBnB business value proposition is Communication, because using AirBnB is often noted in reviews by travellers and hosts as a way to meet people and share conversations.

Our analysis shows that of the 20 organisations included in the matrix, there is only one where communication is the *primary* business value proposition - EatWithMe. EatWithMe promotes itself as a way of meeting new people by sharing conversation over a group meal. The shared meal is secondary to the primary emphasis on communication. More commonly, communication is a secondary emphasis. For example, CoSeats offers a Meeting Space for Mutual Access (to travel). While Mutual Access is the primary or initial emphasis of the organisation's value proposition, it is expected that communication will be made possible as a result of the transaction (sharing a ride makes it possible to share a conversation – Mutual Access enables Communication).

Platform Role	ReD	MA	C
MM	HiPages Etsy** SocietyOne	Uber* GoGet	Uber**
MP	AirTasker Gumtree Modsie Freelancer Etsy*	AirBnB* MadPaws FindACarPark OpenShed* LETS* PopUpBrands	AirBnB** OpenShed** LETS**
MS	Givit Freecycle	EatWithMe** HelpMeWithIt* CoSeats*	EatWithMe* HelpMeWithIt** CoSeats**

Sharing Type

MM=Matchmaker, **MP**=Marketplace, **MS**=Meetingspace,
ReD=ReDistribution, **MA**=Mutual Access, **C**=Communication

Figure 1: Diagnostic Tool for Categorising Sharing Economy Businesses – Australia [* - denotes a primary business model focus; ** - denotes a secondary business model focus]

The prominence of Communication as a secondary aspect of IS-enabled Sharing Economy business models is, we suggest, worthy of further attention.While IS enables the connection between market groups, communication itself seems to primarily take place offline. These online/offline dynamics could inform future research. It may also be worthwhile to consider whether the communication aspects of Sharing Economy transactions are realised in practice, or whether this emphasis has more to do with marketing and the ideal of a neighbourly experience than with actual demand. For example, drivers and users of Uber could be interviewed about the expectation that both will engage in convivial conversation during a ride. Communication could be a genuine value add in comparison with taxis, or it may be that the expectation for communication creates pressure on both user groups that may be unwelcome. A final anomaly in organisations included in Figure 1 is Etsy. This organisation primarily offers a Market Place for (Re)Distribution of new and used goods. Increasingly however there is an emphasis on targeted marketing, where consumers are sent promotional emails that direct them to goods that are similar to prior purchases or that match the consumers' profile and site use. In this sense Etsy offers a secondary function as a Match Maker for (Re)Distribution.

6   Discussion and Implications

Further research on the Sharing Economy will benefit from more nuanced understanding, common vocabularies, standard concepts, and a multi-disciplinary perspective.. This is essential to, 'provide concepts and a vocabulary that "make[s] us more articulate and capable of perceiving differences...and increase[s] our capacity to make connections among phenomena..." (Nicolini 2013, p. 216). Practice theory provides a potentially novel approach for future research that aims to explain organisational initiatives through analysis of their dynamic practices rather than their stated strategies and procedures (Nicolini 2013). Figure 1 illustrates the relevance of this approach where such analysis has revealed previously unrecognised insights into the complexity of the Sharing Economy with multiple organisations implementing secondary business models in addition to their primary focus.

The ShED is an initial framework that enables us to see differences and commonalities around business models used in the Sharing Economy. One goal of such a diagnostic is to support multi-disciplinary synergies because:

> Creating shared value represents a new approach to managing that cuts across disciplines. Because of the traditional divide between economic concerns and social ones, people in the public and private sectors have often followed very different educational and career paths. As a result, few managers have the understanding of social and environmental issues required to move beyond today's CSR approaches, and few social sector leaders have the managerial training and

entrepreneurial mind-set needed to design and implement shared value models. (Porter & Kramer 2011, p. 77)

The ability to clearly articulate similarities and differences can be obscured by academic-discipline and practitioner specific vocabularies and concepts. By highlighting the dimensions of platform role and sharing type we provide a starting point for multiple disciplines, including, economics, government, management, organisational studies and sociology as well as information systems, to examine Sharing Economy companies from their own specific interests while maintaining an accessible method of categorizing companies along known dimensions. We acknowledge that other salient dimensions will expand upon the ShED framework and enable different patterns of similarities and difference to become visible. We view this as a necessary and desirable outcome of future research in this domain.

A significant finding from this initial effort to categorise business models in the Australian Sharing Economy is that organisations in the same industry may operate quite differently, and may have more in common with businesses that do not share an industry focus. For example, according to our analysis, AirBnB shares common elements with MadPaws, which is a pet minding business. Meanwhile, CoSeats, which is a ride-sharing business, using ShED is shown to have more in common with a volunteering organisation (HelpMeWithIt) than with Uber. This finding would suggest that categorising Sharing Economy businesses according to industry or the artefact that is being "shared" may be obscuring similarities between business models and there use of IS that are worthy of further investigation.

Our initial analysis and the development of the ShED diagnostic therefore opens up avenues for future research in which the role of IS can be explored with more nuance. Future research questions that build on this analysis could include 1) How does technology support the different functions of each sharing economy business type? 2) How can we include considerations of time and space into the diagnostic tool (for example, by adding a third dimension)? And, 3) What can we do to highlight differences in the values behind different sharing economy business types (e.g. community versus profit)?

This research suggests future dimensions where ShED could be expanded. For example, little research has considered how *time* is treated in the Sharing Economy – can time be (re)distributed? What does mutual access to time look like? We have been able to place organisations where the value proposition involves time in the diagnostic matrix, however we acknowledge that the further distinction of whether the business primarily deals in time, goods, space, and/or possible services and skills, is another dimension worthy of future attention. We suggest that perhaps a third dimension could be added to the matrix, which distinguishes whether the organisation deals in time, space, or goods. In addition, the literature has been largely silent on the role of Sharing Economy participants perceived as "bad actors". Music and movie sharing platforms, marketplaces of stolen goods or illegal services (e.g. Silk Road) and the platforms supporting hacking tools all involve characteristics of sharing, platform role and economic impact but are not discussed as part of the Sharing Economy narrative. This is an area worthy of further analysis.

There are several challenges inherent in our study. First, organisations were chosen purposively (Miles and Huberman 1994) for diversity to support our analyses and are not representative of the entire spectrum of Sharing Economy participants. Our goal was to develop a diagnostic tool, not to provide a comprehensive categorization. Second, the Business Model Canvas analysis was conducted externally (i.e. the organisation did not do this themselves, we used publically available information). Third, we have organisations as falling in the "Sharing Economy" category if they claim to and we did not engage with critical considerations of where lines should be drawn. Finally, interpretations were made in order to "diagnose" the organisations on the matrix.

7   Conclusion

In this paper we identified dimensions and qualities that facilitate a more nuanced categorisation of the Sharing Economy business models than the extant literature provides. In particular, we highlighted the role of IS-enabled *platforms* in bringing together market groups so that they may participate in the Sharing Economy. By "bringing together" we emphasise three different models for platform activity: the platform as alternately a meeting space, market place, and matchmaker. We argue that these three categories are able to discriminate among the twenty organisations that we canvassed for the purposes of this initial study. We acknowledge, however, that these distinctions may not account for all business models and we now suggest that it is time to look for exceptions that will enrich the model through further complexity.

In drawing upon seminal work by John (2013) we distinguished three types of *sharing* activity: (re)distribution, mutual access, and communication. Again, these distinctions have allowed us to differentiate among the Sharing Economy organisations canvassed as part of this study. These two dimensions enabled us to develop a Sharing Economy Diagnostic (ShED) that exposes common dimensions of Sharing Economy participants and reveals similarities and differences beyond market sector and size. Finally, we have shown that in some cases, the organisation occupies both a primary and a secondary position on the matrix. These somewhat more complex diagnoses warrant further investigation, as it may be that these organisations are more evolved in their offerings, for example, or could be utilising resources in a more sophisticated way. Interviews both with organisational workers and consumers would likely help to offer insight on the significance of these initial findings.

Despite these challenges and opportunities for future developments, this work identifies and presents three transformative roles for IS-enabled platforms in facilitating three levels of intervention in meeting market demands. ShEd, the diagnostic tool developed through analysis of a diversity of Sharing Economy organisations in Australia, demonstrates that Information Systems occupies the critical intersection between demand and supply in the Sharing Economy. This work could be used to support the potential for the Sharing Economy to contribute to four of the UN Sustainable Development Goals: sustainable economic growth (8); innovation (9); sustainable consumption and production (12); and, peaceful and inclusive societies (16). The potential to generate sustainable value through sharing rather than increased consumption is supported by the analysis and findings of this study across a range of sectors, types of sharing and roles for the technological platform. We strongly encourage IS and other research teams with multi-disciplinary perspectives to contribute to realising this potential.

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