The Current State and Future Trajectory of the Sharing Economy: A Multi-Stakeholder Perspective

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Abstract

The COVID-19 pandemic has had a transformative impact on social and economic value, as well as the role of mediating technology and regulation driving participation in the sharing economy. Considering the consequences that such transformations entail, in this paper, we provide a multi-stakeholder perspective of the pandemic's impact on sharing economy enablers and drivers, and the resulting short and long-term implications for customers, providers, platform companies, and policymakers. Through the amalgamation and exploration of these multiple perspectives, we then present a roadmap of the key research themes, considerations, and policy gaps, supplemented with insights contributing toward the vision for a sustainable sharing economy. The comprehensive overview provided in this paper offers multiple avenues for future research across social, economic, technological, and regulatory domains.

Keywords: sharing economy, stakeholders, sharing economy drivers, COVID-19, pandemic, regulation, roadmap, sustainable

1 INTRODUCTION

The COVID-19 pandemic has had a massive impact on the global business landscape. Companies have accordingly needed to adapt to changing consumer interaction patterns, preferences and demands, while at the same time ensuring continuity of operations. For many firms, the (increased) digitalisation of business models and the automation of business processes have become means of keeping up with reshaped customer expectations about service delivery and ensure improved customer experience (Beanne and Brynjolfsson, 2020; Saura et al., 2022; Kane et al., 2021). Companies in the sharing economy (SE) sector faced many challenges too. The sharing economy is "*a socio-economic system enabling an intermediated set of exchanges of goods and services between individuals and organisations which aim to increase efficiency and optimisation of under-utilized resources in society*" (Munoz and Cohen, 2017, p. 21). Unlike the traditional business sector, the challenges that sharing economy companies experienced were rooted in the service offering itself and not only the process of its delivery. Consumers' orientation toward social life has changed and the economic propositions of a sharing-based model of consumption appear to be less favourable since the COVID-19 pandemic (Das et al., 2022; Davlembayeva and Papagiannidis, 2021).

From a social and behavioural point of view, shortly after the pandemic outbreak, individuals started avoiding unnecessary physical contact with strangers (Deloitte, 2020). Non-ownership and social interactions became a source of risk for service providers and customers (Amit and Kafy, 2022). Safety concerns over shared goods and restrictions on social interactions put the sharing economy (SE) market on hold (Deloitte, 2020; Seetharaman, 2020). For instance, the demand for ridesharing services dropped (Conger and Griffith, 2020), related operations were curtailed, and thousands of workers were laid off across the globe (Preetika Rana, 2020; Conger and Griffith, 2020). From an economic point of view, employment in platform companies has been devalued against the backdrop of redundancy risks, market shrinkage and economic uncertainty (Amit and Kafy, 2022). As a result, the increased socio-economic vulnerability of those involved in sharing stimulated government interventions, such as tax reliefs, payment deferrals and subsidies in an attempt to boost the economy (Sigala, 2020). The above challenges faded into the background as soon as the social isolation and travel restriction measures were lifted, leading to the recovery of industries (Statista, 2023). Despite the revival of the sharing economy, the pandemic has changed the macro-environment in which sharing economy platforms are situated, thus paving the way for transformations. For example, from a technological point of view, in the wake of increasing social disconnectedness in physical spaces, the reliance on digital technology has intensified. To ensure their own survival and that of the sharing economy, platforms had to innovate (Gerwe, 2021). Innovation resulted in the emergence of new offerings, such as online experiences, virtual tourism and online tutoring based on shared knowledge (Atsız and Cifci, 2021; Cenni and Vásquez, 2021; Jha et al., 2021). Given the above, the pandemic has forced stakeholders to re-evaluate SE drivers and enablers - social and economic value, mediating technology and regulation - entailing various implications for all the stakeholders involved. Such implications require an analysis of the value drivers underpinning the sharing economy from a multi-stakeholder perspective, considering customers, providers, platform companies and policymakers.

Although research on the sharing economy after COVID-19 is growing, there is a lack of a comprehensive, stakeholder-focused overview of the short and long-term implications of the pandemic with respect to the sharing economy ecosystem. Evidence concerns the consequences of the crisis on supply-side and demand-side users (Atsız and Cifci, 2021; Amit and Kafy, 2022), and the motivational factors underpinning the usage of services (Godovykh et al., 2022; Dogerlioglu-Demir et al., 2022; Tan et al., 2022; Cenni and Vásquez, 2021). Scholars have probed the future of the sharing economy services in the post-pandemic reality (Jha et al., 2021; Gossen and Reck, 2021; Zhu and Liu, 2021; Davlembayeva and Papagiannidis, 2021) and discussed platform responses for navigating the changing business environment (Grieco, 2022; Mont, 2004; Chi et al., 2022; Gerwe, 2021). Recent studies have covered the "dark side" of the sharing economy, for instance, in the context of business-to-business interactions (Rana et al., 2023), focusing on: privacy implications and concerns (Chen et al., 2022); ethical considerations (Behera and Bala, 2023); psychological perspectives (Culiberg et al., 2023); and challenges to business-to-business stakeholder relationship management in the SE (Davlembayeva and Papagiannidis, 2023), among other areas. This paper seeks to move beyond dark side perspectives, and into the realm of a balanced multi-stakeholder treatment of the SE toward consideration of sustainable SE models.

Given the above, the objective of this paper is two-fold. First, it aims to discuss the transformational impact of the pandemic on SE enablers and drivers in view of the consequent short-term and long-term implications for customers, service providers, platform companies and policymakers. Second, the paper aims to provide insights to inform the future trajectory of the sharing economy and related business models, outlining promising areas for future research that account for and offer a multi-stakeholder assessment of policy gaps and recommendations toward more sustainable SE models.

The following section (Section 2) maps the SE economy ecosystem inclusive of prominent stakeholders and discusses the drivers and enablers of participation in sharing pre-pandemic. Section 3 discusses the impact of the pandemic on the SE drivers and enablers from the perspective of each stakeholder, namely, customers, providers, platform companies and policymakers. Section 4 presents a discussion of potential future

developments in the sharing economy, offering a range of policy gaps and recommendations that encourage a more sustainable sharing economy. The paper concludes with Section 5 containing a future research agenda in the form of pertinent questions that highlight pressing research opportunities in support of sustainable SE models.

2 SHARING ECONOMY ECOSYSTEM

The sharing economy ecosystem (Figure 1) is comprised of multiple stakeholders, inclusive of customers, providers, platform companies and policymakers. The purpose of this ecosystem is to facilitate the exchange of goods and services within the context of specific internal and external environments, while supporting stakeholder interactions. In the SE ecosystem, the interactions between stakeholders are determined by their social and economic value, the mediating role of technology, and regulation (Davlembayeva et al., 2019; Davlembayeva and Papagiannidis, 2021; Belk, 2014b). Social value pertains to the social outcomes of relations, such as co-production and collaborations, peer-to-peer interactions, and peer network development (Davlembayeva et al., 2019). Economic value refers to the monetary and non-monetary value that platform users acquire from the provision or the consumption of resources. Customers could potentially enjoy financial benefits resulting from efficient transactions, and resources and services that were previously unaffordable (Laffey et al., 2021; Botsman and Rogers, 2011). Providers receive compensation for granting users access to resources that otherwise remain dormant (Belk, 2014b). Mediating technology refers to information systems connecting stakeholders, supporting their relations and defining the social and economic value co-produced in those relations (Rosenblat and Stark, 2016; Heylighen, 2017; Davlembayeva and Papagiannidis, 2021). One such example is the algorithmic-based price and demand-matching system that determines the costs that users will bear and profits that they will gain from transactions (Heylighen, 2017). With a higher degree of technology mediation, the social value of relations becomes smaller as interactions between peers of the platform become highly automated (Rosenblat and Stark, 2016; Heylighen, 2017). Regulation affects the sharing economy through policies that create favourable conditions for companies to minimise the costs of labour, to maximise profits and to compete with incumbent firms (Park et al., 2019; Etter et al., 2019). The policies may include tax exemptions, limited liabilities, and obligations, and reduced institutional bureaucracy, among other benefits (Ahsan, 2018; Park et al., 2019; Etter et al., 2019).

Against the backdrop of the pandemic, the avoidance of the collective use of resources and economic recession have redefined the role of the social value, economic value, mediating technology, and regulation driving sharing, thereby resulting in corresponding implications and impacts, which are reflected in SE dynamics, models, and policy. Such changes impact the stakeholders involved in the sharing economy and entail the involvement of policymakers to regulate the competitive landscape and other facets of the broader SE ecosystem. For example, when considering social value, peer-to-peer accommodation services were once popular due to the possibility to connect and develop authentic experiences, while interacting with local hosts (Kromidha et al., 2021). That value proposition backfired after the pandemic, where the accommodation sharing sector was the hardest hit (Gössling and Hall, 2019). It disrupted the business model, cut revenues, and left many providers unemployed (Gerwe, 2021). In terms of economic value, declining interest in non-owned resources meant increased purchases of new goods (Davlembayeva and Papagiannidis, 2021). The change in demand implied fewer income opportunities for providers and lower accessibility of some resources for consumers. From the regulatory perspective, legal interventions (e.g., tax exemptions, payment deferrals) eased the impact of the pandemic for platforms and improved providers' job security (Sigala, 2020). As far as technology is concerned, it largely intermediated relations before COVID-19. However, the reduction in demand for tangible resources has paved the way toward the introduction of completely online, experience-based services (Atsız and Cifci, 2021; Cenni and Vásquez, 2021; Jha et al., 2021). New offerings are creating new consumer experiences and entrepreneurial opportunities. However, the nature of these opportunities, the corresponding challenges, and the social, economic, technological, and regulatory drivers of the SE since COVID-19 are not well understood, nor have they been comprehensively reviewed.

The following section offers a comprehensive account of the drivers and enablers, from the perspective of the major stakeholders in the SE ecosystem inclusive of customers, providers, platform companies and policymakers, exploring the drivers and enablers before and since COVID-19, as well as the resulting implications.

Figure 1: Sharing economy stakeholders, the drivers of participation and implications.
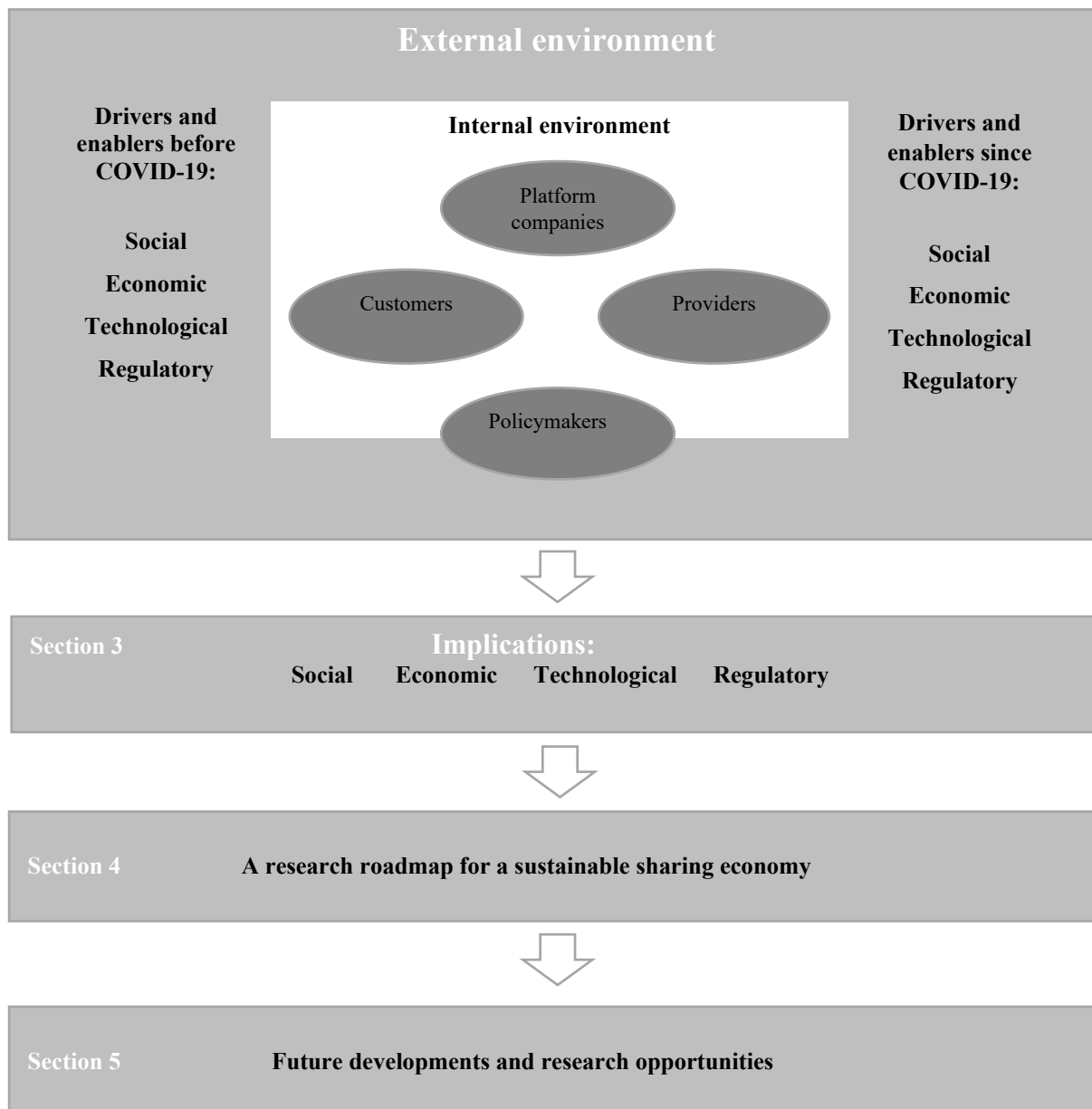
3 A MULTI-STAKEHOLDER PERSPECTIVE ON SHARING ECONOMY DRIVERS AND CONSIDERATIONS

3.1 Customers

Customers in the sharing economy are individuals, groups of people, companies or the entities who access and consume the resources and services they exchange with others through platforms. Depending on the platform business model, customers can be broadly categorised into individuals (peers), and public and private sector organisations (Curtis and Lehner, 2019). Individual consumers use platforms to temporarily access firms' resources, such as commercial carsharing services provided by Zipcar, or the services and products offered by other peers, such as second-hand goods and casual carpooling services (Piscicelli et al., 2015; Curtis and Lehner, 2019). Business customers use platforms to leverage on the capital of the crowd, as in the case of crowdfunding and crowdsourcing platforms; for example, when pharmaceutical firms resort to the crowd to generate ideas and fuel innovation (Saxton et al., 2013). Business customers can also use platforms, such as distributed manufacturing systems, to match with other business partners (Okwudire and Madhyastha, 2021). As SE platforms encourage collaboration and co-creation, individual and business customers may switch their supply and demand-side roles (Frenken and Schor, 2019). They may engage simultaneously in selling and

purchasing, driving and riding, hosting and renting, providing experiences and consuming them, or delivering professional services and using them. As such, the platform technology enables commercial and non-commercial exchanges between prosumers (i.e., receivers and producers of value).

The COVID-19 pandemic has redefined the value of commercial and non-commercial exchanges. Customer preferences have been affected, thus stimulating a higher pace of innovation in the digital environment on a local and global scale. New developments in the industry sector have influenced customers' rationale for using platforms, which had mainly revolved around social and economic benefits before the pandemic, for example, experience authenticity, social relationship building, transaction efficiency, and affordability of and access to goods and services (Davlembayeva et al., 2019). Furthermore, the changes in the social and market landscapes necessitate a re-evaluation of policymakers' support and control to preserve the benefits of using platform offerings. This requires a thorough assessment and understanding of the social, economic, technological, and regulatory considerations as they pertain to the customer perspective.

3.1.1 Social

The main social value drivers in the SE since the pandemic revolve around the ability of stakeholders to *co-create value*, develop *social relations* and *trust* and preserve *consumer rights*.

In the SE context, *co-creation* is the foundation of social innovation emerging from collaborations with other consumers or companies (Nadeem et al., 2020). Due to the salience of peer-to-peer and business-to-peer SE platforms, such as Lyft, Airbnb and Zipcar, it has been customary to view individuals as the recipients of value created through platforms. Examples of social innovation practices include experience co-creation in the hospitality industry and the exchange of knowledge and content creation in online healthcare communities (Shahrokh et al., 2022; Shirazi et al., 2021). However, as the pandemic hit, business-to-business models gained momentum. Business customers started resorting to on-demand marketplaces and supply chain solutions, such as Xometry, Flexe and Stogwa, seeking ways to alleviate fluctuations in manufacturing demand and supply post-pandemic (Coppola, 2022b; Leonard, 2021). Co-creation for business customers is based on a combination of good business ideas and the needs of one partner, and the experiences and solutions to realise the needs of another. A potential implication of such collaborative practices is a more sustainable value chain, through the optimisation of resources and the non-ownership usage model, which may yield positive, future environmental impacts.

Another possibility since the pandemic is that customers' engagement with platforms will produce *less social output (relations)* than before. This can result from the greater embeddedness of technology, leading to the emergence of fully automated services. For example, Xbed, a China-based self-service accommodation provider, functions on a collaborative business model that was adapted to enable a customer-to-business-to-customer connection (Du and Chou, 2020). The system is highly centralised and serves as a single platform for hosts, guests, and keepers to manage accommodation listings on the website and booking processes. Access to and checking in at the hotel is automated through a smart door lock and facial recognition technology, which implies zero interaction between visitors and hosts. Studies indicate that the willingness to stay in accommodation with integrated smart technology is high among prospective customers (Papagiannidis and Davlembayeva, 2022), and as such the self-service model of hotels is likely to grow. This suggests that collaborative relations can be supported without personal contact, and this will probably inhibit social capital creation in relations between providers and customers.

Considering the sharing economy developments to date, the use of technology for monitoring customers beyond their digital transactions incurs risks. By observing customers' physical behaviour, companies may obtain personal data, which may be disclosed both deliberately and inadvertently. This may in turn blur the boundaries between customers' private and public domains, which have always been unclear (Ebrahimi et al. 2022) and *diminish trust* in platforms. Customers may become vulnerable to manipulation by companies, as the latter become the proprietors of customers' data and hence they are likely to have the resources and opportunities to shape customers' needs. Consequently, since (and to some degree as a result of) the pandemic, sharing economy models and operational decisions will likely require a stronger emphasis on *consumer rights*.

3.1.2 Economic

Economic expediency is arguably the strongest driver for purchasing and consuming services and resources through SE platforms given the changes observed since the pandemic. It is likely that the economic utility of transactions will define participation on *business-oriented* and *peer-oriented* platforms, which may have broader implications in terms of *economic equality*.

Despite health-related concerns and privacy risks for consumers, the global socio-economic climate formed by the reduced economic activities across various sectors contributed to a somewhat speedy recovery of the sharing economy. Existing economic stagnation accentuates the logic of the non-ownership model of consumption in the post-pandemic reality. For instance, people will refrain from purchasing apartments, cars, and equipment, unless owning is necessary (Deloitte, 2020). For individual consumers, accessing resources

instead of buying them is a way to reduce costs against the rising inflationary pressure and the shortage of resources. For business customers, collaborative consumption is a way to balance redundancies and the shortage of resources in the ecosystem, ensure the continuity of business operations, create new revenue streams, and ensure the employability of workers. The economic rationale is strong for companies in industries such as agriculture, energy, mining, heavy production, and manufacturing. This may drive participation and the growth of the business-oriented platforms in the sharing economy.

The shortage of financial resources experienced by small and medium-sized enterprises (SMEs) after the pandemic has enhanced business customers' interest in platforms enabling them to borrow and raise money, thus pivoting to the growth of the crowdfunding sector (Statista, 2022a; Research & Markets, 2022). Crowdfunding platforms match multiple unidentified funders with people and SMEs for the latter to receive financial support (Belleflamme et al., 2015). For example, a related study suggests that the value of the market is likely to triple by 2025, as there has been an increasing number of newly launched platforms, loans, donations, and investments aimed at supporting people, communities and small businesses affected by the COVID-19 pandemic (Research & Markets, 2022). With trends like these, SE platforms promise economic benefits capturing more strategic value than simply the reduction of transaction costs, including but not limited to the reduction of time and costs for product/service searching, buying and contracting.

In the long term, there is a risk that the growth of the sharing economy and consequently its economic benefits will be more stratified in regions with higher digital penetration and literacy. The digital divide emerging primarily in economically disadvantaged countries could worsen economic conditions even further (Eichhorn et al., 2022). A highly connected and tech-savvy population will probably progress further ahead, while people with limited access to digital resources, who thus share economic opportunities that could be capitalised upon, may receive fewer economic benefits. Fewer barriers to economic resources and benefits create paradoxical economic conditions, encouraging *economic equality in some countries* while increasing their disparity with the rest of the world, where digital resources are much less accessible.

3.1.3 Technological

Since the pandemic, the sharing economy has demonstrated that the digital capabilities of platforms can be leveraged to address changing customer needs and concerns through *new offerings*, *new applications of existing platforms*, the utilisation of *advanced systems* and *security-enhancing technology*.

After the COVID-19 outbreak, individuals received access to *new service offerings* and *new applications of existing platforms* that had not been available or had been largely offered in physical space before the pandemic. That happened due to SE firms offering substitutions for platform services that declined in demand and that were irrelevant for the period when health concerns and restrictions were pervasive in society. For example, people substituted physical visits to doctors with healthcare services made accessible through shared platforms (Akter et al., 2022). Similarly, Airbnb customers capitalised on the opportunity to connect with people around the world virtually to share experiences through the newly introduced Online Experience platform (Airbnb, 2020). By being an inherently digital phenomenon, the sharing economy has the flexibility to adapt to new market realities due to digital resilience (Raj et al., 2020). Hence, although the health crisis impacted on the value propositions of some platforms, digitally *advanced services* enabled companies to stay afloat and restore the users' and customers' interest in their offerings after the pandemic.

Due to the intensified pace of digital transformation, the pandemic has also triggered interest in the application of platforms in urban sustainable development and their wide integration in smart cities (Habitat, 2023). If supported by governments and local institutions, SE initiatives in the transportation and delivery sectors may help promote digital inclusion among marginalised communities and ensure environmental sustainability. Consequently, considering the potential social and economic benefits, the integration of platforms in the infrastructure of cities and regions (e.g., healthcare, education, transportation) holds the potential to improve quality of life at the local and regional levels.

A drawback of the future ubiquity of SE platforms, however, is the inevitable flow-on effect on customers' control over personal data. Potential power asymmetries may be introduced and / or reinforced as platforms may gain enhanced digital surveillance capabilities over a considerable number of customers, resulting in significant risks to personal data protection, cybersecurity, and the potential mistreatment / exploitation of customers. On the other hand, new *security enhancing technology*, such as the blockchain, could mitigate some of the concerns and challenges stemming from digitisation for demand-side users. Scholars suggest that the capabilities of the blockchain are underexploited in smart cities (Fiorentino and Bartolucci, 2021). Platform governance tools built on the basis of blockchain technology can automate and decentralise transactions in the sharing economy (e.g., by tracking rent payments, and with bookings record keeping), thus limiting access to personal data by third parties and improving their traceability and transparency (Fiorentino and Bartolucci, 2021). Although blockchain-based sharing economy mostly exists as a concept, it could become a fully-fledged business case given the increasing application of blockchains across industries.

3.1.4 Regulatory

The capability of SE platforms to act in the public interest has long been questioned, as regulatory frameworks are somewhat ineffective in managing platforms and protecting consumers' rights (Murillo et al., 2017). Effective regulation is challenging as the digital governance of platforms enables them to circumvent obligations expected from traditional firms, making it possible to collect and store customer data, thus causing *information asymmetry* and undermining data privacy (Cohen and Sundararajan, 2015). However, some *regulatory steps to protect data* have been taken towards a more accountable sharing economy.

First, although not yet ubiquitous across the world, data-related policies, such as the *General Data Protection Regulation* (GDPR), have been introduced to oblige companies to treat customers' data fairly. Such a law prescribes the nature of information and the amount of data that companies can collect, setting penalties for noncompliance (Albrecht, 2016). The regulation suggests that companies of all "shapes and sizes" without exception will need to follow and adapt their data handling strategies (Burgess, 2020). For customers, the regulation promises higher accessibility, data transparency and control over their personal information. The changes in the legal landscape demonstrate the response of governments to individuals' privacy concerns, which is essential to acknowledge. Given the accelerated pace of digitalisation and the growth in platforms since the pandemic, data protection will be especially important in the future.

Second, during the pandemic, some SE companies had a stronger citizenship role in local communities, which could potentially benefit customers. Platform companies started sharing data they collect about customers with local authorities and governments to improve the social conditions of local communities and develop laws to improve customers' rights (Meenakshi, 2023). For example, Airbnb launched a number of initiatives in different countries (e.g., Airbnb Citizen, Airbnb Portal) to increase transparency in their activities and help governments adapt policies and monitor compliance with them, including tax laws, data processing and fair competition. Going forward, the (regulatory) interventions of governments could improve service quality from one perspective. On the other hand, the stringent control of providers' economic activity could result in higher costs of service provision and higher prices, leading to a trade-off between service improvement and lower economic value, that is, a dilemma of benefits. However, the sharing economy has been notoriously famous for its paradoxical implications for stakeholders, whereby the benefits (e.g., low costs, flexibility) originating from the SE's nonconventional governance negate other functions and processes (e.g., control over processes, organisations' accountability, the protection of customers' rights), which are common for traditional firms (Davlembayeva and Papagiannidis, 2021). Hence, for customers, the sharing economy will probably remain a system of trade-offs in the future.

3.2 Providers

Providers may be independent contractors, micro-entrepreneurs, or employees. Their respective status depends on the nature of the contractual agreement upon which providers engage with SE platforms (Dubal, 2017; Kuhn and Maleki, 2017). Providers are responsible for the supply of resources in the sharing-based socio-economic system, which may come in the form of second-hand goods and equipment (e.g., Craigslist), riding and professional work services (e.g., TaskRabbit and Uber) and apartments and coworking spaces (e.g., Airbnb and Couchsurfing) (Davlembayeva et al., 2019). The providers' participation in sharing has different socio-economic implications. These implications are largely dependent on digital systems enabling companies to automate providers' behaviour tracking, customer experience management, performance evaluation and workload allocation, which ensure operational and managerial efficiency (Davlembayeva and Papagiannidis, 2021). As the use of digital technologies has changed given the COVID-19 outbreak (Beaunoyer et al., 2020; Papagiannidis et al., 2020), the implications for providers since the COVID-19 pandemic are different from those in the pre-pandemic period.

So far, the socio-economic consequences of providers' participation in sharing were disputable due to the economic utility of the algorithmic management of platforms, on the one hand, and the unpreparedness of the regulatory institutions surrounding the sharing economy, on the other. The duality of conditions underpinning the functioning of platforms brings both benefits (e.g., flexible working, income generation supplementary to a full-time or other job, and the realisation of entrepreneurial initiatives directed at developing social communities) and risks (e.g., restriction of providers' rights and rewards) (Hui et al., 2018, Redfearn Iii, 2016). This is because the providers' role in shaping the platform offerings is reduced to a minimum as algorithms substitute communication between stakeholders and enable excessive control and surveillance over providers (Redfearn Iii, 2016). Dehumanised communication between stakeholders and the accumulation of digital data by platform companies are conducive to unfair income distribution and unfavourable work conditions (Etter et al., 2019; Ahsan, 2018; Redfearn Iii, 2016). However, with the increasing digitalisation of many sectors and higher accessibility of platform technology for the general public since the pandemic, the trade-off of benefits and risks needs re-examining. In addition, providers have been affected by the transformation of consumers' preferences for services (Deloitte, 2020), lifestyle choices and values (Balog-Way and McComas, 2020). That means that the social, economic, technological, and regulation-related implications for providers need to be considered.

3.2.1 Social

The pro-social pattern of relations (i.e., social interaction, social relationship building, social exchange) was the main condition for the sharing economy to emerge in the first place. In sharp contrast to traditional economic exchange relations, the exchange of resources through platforms has been the product of the combined effect of social interaction, informal regulation, and economic rationale (Davlembayeva and Papagiannidis, 2021). However, the pandemic temporarily removed the social variable from the equation. Due to the social isolation measures, the transformation of the pro-social patterns of behaviour of those involved in the exchange deeply affected communities at the base of the economic pyramid. Overall, the social implications of the pandemic for providers concern *trust*, *ties,* and *solidarity*, as well as the wider impact on providers' *social inclusion* and *social security*. The manifestation of those implications was different during the pandemic when social distancing restrictions and health-related concerns were still in place, and after the pandemic, when the demand for sharing services and resources returned to the pre-pandemic level.

Shortly after the COVID-19 outbreak, providers' *ties with* and *trust in* platform companies were tested. The reduced social interaction and health-related risks drastically lowered consumers' demand for platform offerings, especially in the transportation and accommodation sectors. The rides across major ridesharing platforms dropped by up to 80% (Conger and Griffith, 2020) and international travel declined by up to 60% (OECD, 2020). Providers were disconnected from other stakeholders in the SE ecosystem. The ability of platforms to ensure social security in major cases proved to be weak, following the closure of multiple offices and the layoff of workers globally (e.g., Uber and Airbnb) (Preetika Rana, 2020; Conger and Griffith, 2020). Providers were also disconnected from consumers due to the fear of the latter using shared resources and spaces/rides with strangers. As a result, the providers' means of developing relations were severely undermined.

Irrespective of the adversities created by the pandemic, the crisis changed the overly commercialised path of the sharing economy development, instead highlighting more actively the driving force of *solidarity* in the sector. Providers' social insecurity, weak trust in platform companies and changing consumer behaviour have stimulated their empowerment and initiatives that had never been actioned before. First, providers united in a collective effort to improve their social status. Against that background, platform cooperatives re-gained attention as a force to redefine the providers' position in the socio-economic system. They represent democratic community-oriented enterprises owned and controlled jointly by their workers (Mannan and Pek, 2021). Platform cooperatives sell goods and services through mobile apps and websites. However, unlike platform companies, cooperatives prioritise the generation of prosocial benefits, such as the contribution to society and equitable work conditions for their workforce (Employee Ownership Association, 2023a). For example, the Platform Cooperativism Consortium, started in the US (platform.coop), runs educational projects for the people most affected by the pandemic to help them adapt to the social crisis. Such cooperatives have the potential for growth. In the UK, the employee-owned sector, which includes platform cooperatives, has doubled since 2020 (Employee Ownership Association, 2023b). Therefore, community-oriented enterprises such as the above are likely to gain larger exposure worldwide, thus increasing the creation of truly communal forms of peer-to-peer platforms.

The changes in consumers' preferences and behaviour have had an enduring effect since the pandemic. Although the demand for shared services and goods declined during the pandemic, the crisis has made people rethink the value of communal goods. That is illustrated by the shift in demand in favour of local suppliers, workers, accommodation, and other local offerings (Deloitte, 2020). Considering the increasing demand, it is expected that there will be more examples of community-driven SE enterprises in the years to come. However, the development of relations within close communities will affect the geographical scope of social networks. Hence, it is probable that the sharing economy will foster *bonding social ties,* in contrast to bridging connections. Although this trend will make providers' social networks narrower, the relations resulting from engaging in community-led sharing platforms are likely to be sustainable over time and resistant to other socio-economic crises if they arise.

3.2.2 Economic

The role of the sharing economy in establishing an egalitarian society has always been debatable (Langley and Leyshon, 2017; Fleming et al., 2019; Lang et al., 2020; Gurran et al., 2020). It remains so, even since the COVID outbreak. On the one hand, there are persistent challenges due to *economic instability* and *uncertainty in employment status* affecting providers' wellbeing. On the other hand, there is an emergence of new *employment opportunities* and initiatives directed at *restoring providers' control* in the economy.

The pandemic exposed the fragility of SE enterprises and the implications for providers' vulnerable economic status. In the first two years after the COVID-19 outbreak, platform companies suffered from significant economic damage due to the decline in demand (Wang et al., 2023). Consequently, dominant platforms, such as Uber, Lyft and Airbnb, experienced challenges in ensuring economic security for their workers. However, when travel restrictions were completely lifted, the industries with a peer-to-peer form of exchange recovered and gained revenues akin to the pre-pandemic levels (Statista, 2023).

Against the backdrop of the decline in certain sectors, the focus of platform companies was reoriented towards tackling the evolving needs of consumers. Providers received *new opportunities* to be involved in the provision of services that had not been previously common. For example, ridesharing had been the dominant service in the Uber portfolio before the pandemic, accounting for 76% of the total company revenue (Salas, 2022). In contrast, Uber Eats had been a secondary service for the company, which brought in only slightly more than 10% of the total revenue (Salas, 2022). Travel restrictions and social isolation led to the development of consumer habits, such as eating at home, that were sustained even after the pandemic. As a result, 2021 was the first year when revenues from Uber Eats surpassed the revenues of the ridesharing service, thus making up almost half of the total returns for the company (Salas, 2022). A similar trend was observed for other delivery companies, such as DoorDash (Coppola, 2022a). Companies also discovered untapped opportunities in new markets, such as safe transportation, enabling them to respond to the needs of customers for whom sharing spaces in public transport is still a concern (Meenakshi, 2023). That means that higher fragmentation in the sharing economy enabled a wider segment of individuals to get involved in the provision of services.

Although the demand for peer-to-peer services has stabilised, the economic challenges (e.g., platform liabilities, inequitable earning) of employment in the sharing economy are still an open question. Out of all sectors, ridesharing arguably deserves the strongest scrutiny. The deteriorating conditions after the pandemic served as a strong impetus for micro-entrepreneurs and workers in the sharing economy to launch the small provider-owned enterprises mentioned above, thus giving them partial *control* in the sector. The enterprises can increase providers' profits by removing the third-party (i.e., a platform company), mediating relations between providers and customers. For example, Drivers Cooperative redistributes earnings in a fairer way among all stakeholders involved in the provision of services (Carnegie, 2022). There are hundreds of similar enterprises cutting across different sectors, including short-term rental, transformation, care, and domestic work around the world (Carnegie, 2022). In the long term, the cooperative model could propel the development of an egalitarian society and sustainable economy through better employment/entrepreneurial opportunities for people. However, the scaling up in markets with existing dominant platforms may be hindered by insufficient funding. Such a concern has already been raised among those who govern cooperative platforms (Carnegie, 2022). To stay communal, cooperatives need support from the institutions that would help platforms avoid the dilemma of functioning for self-interest versus the public good.

3.2.3 Technological

The COVID-19 pandemic has led to redefining both the applications and implications of digital systems intermediating relations between SE stakeholders, with providers experiencing a significant impact. Specifically, the pandemic triggered a faster *development of the digital environment,* which could potentially fuel the expansion of *cooperative platforms*, *provider-oriented platforms,* and fully *automated services*.

Following almost two years of isolation, the pace of *digital transformation* has been accelerated due to the increasing willingness of companies to deploy online services that would otherwise be delivered offline (Taylor, 2023). Digitalisation was required to meet increasing customer demand for digitally enabled solutions. As the use of contactless payment systems, e-commerce platforms and web applications have become normalised and routinised in consumers' daily lives (Mittal, 2021), it is likely that diverse offerings will be introduced in markets that have been largely oligopolistic, such as transportation or accommodation. On top of that, we can witness the expansion of platforms functioning within a system that is more *conducive to addressing the needs of providers*. For example, the Xooox platform (Heathman and Martin, 2022), launched before the pandemic, currently connects almost 400 000 independent licenced drivers and drivers working for taxi operators in the UK. Unlike other ride-hailing companies, Xooox is available for taxi firms that want to supplement traditional booking systems with real-time ride requests through the app. Such technology empowers drivers as it enables them to set their own prices, select the journeys they want, and avoid paying commission. With the wider adoption of applications like this in all spheres of life, providers in the sharing economy are likely to have more options for contractual or non-contractual employment at platform companies, which puts them in control of their work conditions.

Furthermore, the *cooperative model of SE platforms* would not have been possible if software and digital technology had not been sufficiently advanced and popularised to make platform systems and applications more accessible for people. Digital systems at the providers' disposal enabled them to build platforms addressing the pitfalls of the job defined by algorithms. Workers can circumvent the problems created by algorithmic management, including arbitrary dismissal, unfair ranking, and the unwillingness to resolve provider-customer conflicts to ensure customer satisfaction (Carnegie, 2022). Since the pandemic, worker-owned apps have been able to compete with Silicon Valley companies, thus increasing the chances for the challenges of the sharing economy to be resolved.

On the negative side, however, the reliance on and advancement of digital technologies has reached a point where the need for human providers in certain sectors of the sharing economy may be declining. For example, in countries such as China, the UK and USA, laws are being considered and the viability of autonomous vehicles is

being tested for their mass deployment in the ridesharing industry (Fannin, 2022; UK Parliament, 2023). Considering the digital race and governmental support to realise the practical use of autonomous technology and *fully automated services*, future scenarios concerning sharing practices void of human involvement are not very far away (e.g., Waymo) (Templeton, 2024). Another example is the increasing use of drones for commercial deliveries (Cornell et al., 2023). As the delivery market provides jobs for a vast segment of the population, the widespread deployment of autonomous delivery technology may deprive people of the means of potential income. In the given scenario, the sharing economy will not be about sharing at all, but simply about service delivery.

3.2.4 Regulatory

The operations of platforms have been unregulated in many aspects, such as workforce management, platform liabilities, fair competition and taxation, entailing challenges in platform-provider relations (Ahsan, 2018; Laurell and Sandström, 2017; Etter et al., 2019). Such challenges had not been sufficiently tackled pre-pandemic. Additionally, the pandemic has brought more complexity to the regulatory environment against the backdrop of the changing market landscape and health-related concerns in society.

For instance, the health crisis necessitated governments to introduce *health and safety policies* that were obligatory for all businesses to follow, especially in the hospitality and transportation industries. Although platform companies are not subject to strict regulation compared to traditional businesses (Ferreri and Sanyal, 2018), they had to introduce health and safety requirements and rules to retain customers (e.g., disinfection of surfaces, a 24-hour gap between guests, installation of protecting shields in cars etc). The responsibility to follow new protocols and costs were passed on to hosts and drivers. After safety restrictions were lifted in the post-pandemic period, customers' expectations about hygiene standards continue to remain high. For example, a study conducted in 2022 found that only 6% of travellers in the UK have not adapted their travel behaviour due to the pandemic, and almost half of the travellers stay away from crowds (Statista, 2022b). Given the current state of regulatory mechanisms, it is the provider's responsibility to meet customers' expectations and navigate changes in the market.

Most importantly, the deregulation of the sharing economy in relation to *labour conditions* remains almost unchanged after the pandemic. Providers are largely contractual workers. This results in uncertainty because the current regulation is flawed in defining prescriptions for platform companies and their workers. Independent contractors are neither autonomous of platforms' policies nor protected by platforms in social and financial emergency situations (Wentrup et al., 2019). Platform companies take advantage of this regulatory gap. They aim to minimise their accountability for the people they employ when it comes to the provision of social security packages (e.g., health insurance, pensions), and extend their rights when it comes to encroaching on providers' privacy through control and surveillance (Murillo et al., 2017). Ineffective labour law enables companies to profit from the reduction of labour-related costs while holding the right to fire and performance manage providers at any given time (Parwez, 2022). While these problems had been largely prevalent in ridesharing companies, they have extended to burgeoning sharing economy sectors since the pandemic, such as food delivery services.

The passive stance of legal institutions in regulating the activities of big platform firms does not bode well for the providers in the future. As governments encourage *innovation* in all spheres of life, deregulation of the sharing economy paves the way for the faster advancement of the technology to the degree where the provider's active role in the provision of services will no longer be required. An example of that is Uber's self-driving cars, where drivers are treated like human dummies (Michael, 2022). If this service sector is growing, such developments will potentially perpetuate the vicious cycle whereby the drivers would have little incentive to develop skills that they will not require, thus adding more to the economic vulnerability of the population engaged in the sharing economy. These challenges are industry specific. Still, they set precedents and make one ponder about the potential implications for other sectors in the sharing economy. Therefore, while the importance of automation and the need to create favourable legal conditions are undeniable, policymakers need to strike the right balance between the welfare of the labour force and innovation in the sharing models themselves.

3.3 Platform companies

Sharing economy firms such as Uber, Airbnb and Didi are seen as platforms (Cusumano, et al., 2020), with the majority, but not all, being transaction platforms that create value as intermediaries by bringing together otherwise unconnected parties and enabling an exchange to take place. This can be queried with property sharing economy platforms as properties are simultaneously available on other accommodation platforms (e.g., Booking.com and Airbnb). For commercially orientated activities, the platform handles the exchange of funds, and this naturally leads to the common revenue model of levying a commission on at least one of the participants. There are also non-commercial platforms such as Couchsurfing, which facilitate the sharing of accommodation but do not charge a fee. The platforms also maintain trust and handle disputes between their

participants (He et al., 2021) and effectively fulfil the traditional roles of a market intermediary (Bailey and Bakos, 1997).

Platforms connect at least two distinct types of participants, who are attracted by the presence of the other participant, for example, hosts (providers) and guests/receivers (customers) in Airbnb. In the case of online food delivery services, such as Deliveroo, Uber Eats or Just Eat, there are three types of participants, such as restaurants (providers), delivery staff (providers) and receivers (customers). For market entrants, this creates the chicken and egg problem (Hagiu and Rothman, 2016). For example, potential guests for a property platform want to see a wide choice of accommodation, whilst hosts want a ready supply of potential guests, neither of which is likely to be easily attracted to a new platform. When this challenge is overcome, the platform starts to exhibit strong indirect network effects. Indirect network effects may then become a powerful barrier to entry, as the different types of participants are in ready supply. For instance, in a major city, Uber drivers may be more likely to accept fares which originate and end in busy locations, as they are likely to end a ride close to other potential rides. The scenario of a driver turning down a fare to a quiet location further illustrates the importance of indirect network effects and shows that platforms are multi-sided markets as all participants can choose whether to participate.

With the outbreak of the COVID-19 pandemic, big sharing economy firms, which had seen rapid growth due to indirect network effects, started experiencing an imbalance in the supply and demand as their stakeholders had high expectations for hygiene measures and social support. To compensate for the decrease in demand, platform companies started engaging in social responsibility initiatives and innovation in offerings across the food delivery, transportation, and accommodation sectors. Discussed in the following sections are the ensuing social, economic, technological, and regulatory implications.

3.3.1 Social

Proponents of the sharing economy have long focused on its ability to bring benefits to society and making use of existing assets which are underutilised, such as accommodation, which can reduce overall production, offer providers an income and widen choice and innovation for receivers. The incomes offered through many sharing economy platforms were removed as pandemic restrictions were imposed, raising questions about their financial sustainability for providers.

Many have also queried the *sustainable credentials* of platforms and whether they achieve sustainability and benefit society overall. For example, Palgan et al. (2017) highlighted that the sharing economy can extend the life of products through second hand markets. However, consumption may be increased as receivers or customers can gain access to products previously beyond their purchasing power. Brydges et al. (2021), looking at the clothes sector, explain that whilst such platforms offer another option to owning an item of clothing, there is no clear evidence around sustainability.

When it comes to the transportation sector, researchers found that in the United States, Uber trips created 69% more pollution than the journeys they replaced (Transport and Environment, 2020). Whilst ride hailing vehicles are newer and overall more environmentally friendly, the problem is the additional time drivers spend driving or waiting without a passenger, which was estimated at 42% of an Uber driver's time (Transport and Environment, 2020). This will cause a problem until all ride-hailing becomes electric. In contrast to ride hailing, pool sharing is the most environmentally friendly manner of car travel and will also address congestion issues. However, pool sharing makes the matching process more difficult by adding a 3rd participant to the transaction. A study in Toronto found that only 15% of Uber rides were pooled, and of this proportion only 52% were actually matched, meaning the UberPool service was then taking a single passenger (Young et al., 2000). The pandemic led to the suspension of pooling services, a backward step for sustainability, by Uber and Lyft though they were later reinstated. Increasing the proportion of rides using pool sharing is a major challenge for such providers to claim they are focused on sustainability.

In contrast, Mont et al. (2021) noted that bike sharing services grew in the pandemic, a positive development in terms of sustainability, which is something that has continued. Data from Statista (2022) supports this, with year-on-year growth in bike sharing from 2017, estimated to continue to at least 2027, with the largest percentage increase in 2020. Looking forward, Mont et al. (2021) also argue that ride-hailing services will be promoted as part of moves to make transport systems more sustainable, though it seems hard to see how this is credible unless the number of journeys overall is reduced, e.g., through more use of pooling services.

Against the backdrop of increasing environmental concerns, platforms often claim that they aim to negate the negative environmental impact that they create and encourage more sustainable practices. For instance, Uber argued in 2020 that they were using the pandemic as an opportunity to change their environmental impact and address climate change (Khosrowshahi, 2020), and, as such, several initiatives were introduced. Uber is aiming to become an electric only car service in North American and major global cities by 2030 (Uber, no date given), with its aim for London being 2025. Uber introduced a series of initiatives to incentivise its drivers to adopt electric vehicles, including its zero emissions incentive, which gave North American drivers $1 extra per ride for a limited period, specialised rental agreements for their drivers with Hertz and subsidised charging for

electric vehicles (Uber, no date given). These initiatives started to bear fruit, as in 2022 Uber announced that 90% of drivers joining them in the UK used electric vehicles (Uber, 2022).

Apart from the environmental sustainability agenda, during Covid-19 there were examples of sharing economy companies engaged in social responsibility initiatives by *supporting various stakeholders* (Mont et al., 2021). These included Uber providing 10 million rides and food deliveries to essential workers and vulnerable groups globally for free (Polman et al., 2020). Mont et al., (2021) also note how Uber Eats enabled restaurants to stay in business through adding a delivery option and that Uber Eats paid restaurants on a daily instead of a weekly basis to help with cashflow. Similarly, Airbnb announced in 2020 that it would waive fees to accommodate 100,000 healthcare professionals, relief workers, and first responders globally (Airbnb, 2020a). Its hosts could allow guests to stay free of charge through Airbnb's well-established Open Homes, which offers emergency housing. This programme was given a boost by the COVID initiative, and it was spun off as Airbnb.org in December 2020 (Airbnb, 2020b). Katta et al. (2020) cited in Mont et al. (2021) argue that there is a need for the support the sharing economy platforms introduced in the pandemic to be institutionalised, though there is no evidence that this is yet the case.

Despite the platforms' initiatives mentioned above, Chen et al., (2022) highlight concerns around the impact of the sharing economy on achieving the UN Sustainable Development Goals, specifically tourism and decent work (SDG 8), as well as reduced inequalities (SDG 10). Whilst Meenakshi (2023) notes that Airbnb compensated hosts and guests for cancelled stays in the pandemic, Chen et al.'s (2022) study, which analysed data in Sydney, Australia in 2020, shows how the financial burden of COVID-19 affected the hosts more seriously than Airbnb. It was stated that the financial losses born by Airbnb hosts are approximately 6.5 times greater than the losses of the Airbnb platform (Chen et al., 2022). They also noted that many Airbnb hosts were not able to obtain government support, which highlights the precarious nature of income derived from sharing economy activities. This also certainly goes against the UN Sustainable Development Goal of reduced inequality (SDG 10) as the losses fell more heavily on providers than the platform.

3.3.2 Economic

Given the pandemic rendered close human contact illegal, or at least undesirable, this severely reduced the revenues for car riding and accommodation services, resulting in significant economic implications for platforms. This is demonstrated by the fall in revenue for Airbnb from $4.8 billion in 2019 to $3.4 billion in 2020, about a 30% reduction (Airbnb, 2021). Comparably, Uber's mobility revenue segment declined from $10.4 billion in 2019 to $7.9 billion in 2020, about a 25% reduction (Business of Apps, 2023). As these services involve close contact between people, any event such as the pandemic or a future event with similar consequences, will prevent these sharing economy firms from operating, or require that they operate under restricted conditions.

Additionally, the costs incurred by firms increased, as even once local regulations permitted activity, there were *requirements/expectations for hygiene measures* to be in place. There were also increased costs of business with general shortages, which has become an ongoing feature since the pandemic. The sharing economy's *revenues recovered* after the pandemic, with Uber's 2022 revenues surpassing 2019 (Business of Apps, 2023) and Airbnb surpassing its 2019 revenues in 2021 by over $1 billion (Statista, 2023). To quote the CEO of Uber, Dara Khosrowshahi, "*We ended 2022 with our strongest quarter ever, with robust demand and record margins*" (Uber, 2023). This is evidence that the pandemic did not lead to a permanent change in consumer behaviour, but rather led to overreactions in certain sectors.

Meal delivery is a segment that increased in value both during and after the pandemic (Meena and Kumar, 2022). To illustrate this, Uber's delivery segment increased from $1.3 billion revenue in 2019 to $4.8 billion in 2020, and then by 2022 had reached $10.9 billion (Business of Apps, 2023). A challenge facing the meal delivery sector is to turn revenues into profits as the focus had previously been on the growth of the customer base (Nott, 2023).

Uber also grew its Uber Freight business, originally founded in 2017, which connects companies that need to transport goods with those who can provide such transportation, during the pandemic. Historically, freight brokers would connect these parties whilst Uber Freight replaces the broker and allows the drivers to view the available jobs (Petrova, 2019). Revenues grew from $0.7 billion in 2019, to $0.9 billion in 2020 as Uber Freight was able to take advantage of the need to move COVID-related medical supplies, as well as the boom in online shopping brought on by the pandemic. In the aftermath of the pandemic, revenues grew, reaching $6.9 billion in 2022 (Business of Apps, 2023), which showed this could be a *new growing market* for Uber and the sharing economy. This is an interesting development as twenty years earlier, during the dot com boom, the same idea had been developed by several firms, for example, National Transportation Exchange (Song and Regan, 2001) and Uber's brand, resources and the impact of the pandemic enabled it to grow this area.

3.3.3 Technological

In response to the growth of remote working, partly because of the pandemic and through other trends, such as digital nomads, *accommodation sharing platforms innovated* their offerings. Airbnb introduced its Split Stay feature in May 2022. Split Stays uses algorithms to enable users to book two separate properties splitting their stay between them, instead of manually managing two separate bookings (Vinod, 2022). Another example of innovation is Airbnb Online Experiences, which was launched in 2020 as a substitute for Airbnb Experiences. The latter offered competition to tour companies by offering conventional tourist trips and activities, e.g., cookery classes, along with a wide range of events through its hosts. However, it was pitched as more authentic than conventional tourist activities by Airbnb as they argued guests could "live like a local" and be immersed in their host's world (Airbnb, no date). Airbnb Experiences, however, fell victim to lockdown, and to help their hosts recover lost revenues, Airbnb Online Experiences was launched (Zhu and Cheng, 2022). These are interactive events hosted over Zoom, which not only made up for the lost opportunities of lockdown but also introduced a new opportunity whereby learning about a location's culture and history could be separated from travelling to the location itself. As travel resumes, such online experiences may stimulate trips to the locations themselves, and complement the traditional tourist industry, or fulfil the needs of some travellers who do not feel the same need to visit a place in person. Whilst virtual tourism, a term without agreement, has been discussed for some time (Mura et al., 2017), the necessity of the pandemic, which led Airbnb to launch its Online Experiences, brought the idea to a much wider audience.

As to other sectors, Papagiannidis and Davlembayeva (2022) argue there is a need for property providers participating in the sharing economy to differentiate themselves. They looked at the integration of smart home technology in sharing accommodation and found that such integration can improve guests' services and experiences. This is something the platforms could try to facilitate and offer their providers financial support. It could also contribute to accommodation becoming more sustainable, for example, if the technology encouraged efficient use of heating systems.

Further *innovations came in online food delivery services*. The boost to this market through the pandemic did not lead to profitability. However, this COVID-led growth underlined the potential in this segment. For instance, Uber is piloting autonomous delivery pilots in California (Bellan, 2022) with Deliveroo experimenting as well (Gapper, 2021), which could address some of the cost issues.

The last few years have also seen more interest in *self-driving cars* for taxi services. This is something which would provide an alternative, allowing normal business to continue in response to other future crises. Although Uber sold its self-driving car division in 2020 to Aurora, this was to raise finance, with Uber taking a stake (Kollewe, 2000). San Francisco has already seen self-driving car apps in the form of Cruise and Waymo and Uber announced it would continue its pilots in this area in 2022. However, the development of autonomous vehicles presents its own challenges (Michael, 2022) and the problems should be managed.

3.3.4 Regulatory

The varying levels of restrictions imposed during the pandemic are largely diminishing in certain contexts; however, for many years there have been ongoing regulatory battles between some SE firms, for example, Uber and Airbnb, and governments and regulators. Meenakshi (2023) explains that such firms could *avoid the much more onerous regulations and costs* of doing business (i.e., taxes and administrative charges) that the old economy firms they were competing with had to comply with. Regulation was also impeded by the barriers to regulating fitting sharing economy firms in specific regions, and also the problems of fitting them into traditional legal classifications.

Evasive entrepreneurship is used to describe companies, such as the SE firms Uber, Lyft and Airbnb, which operate in grey areas facilitated by advances in technology (Elert and Henrekson, 2016) and where governments and regulators are struggling to catch up. For example, platform firms have caused concerns regarding workers' rights, as previously stated in this paper. Whilst Möhlmann and Henfridsson (2017) note that Uber drivers make themselves available when they want to work, the drivers had concerns about surveillance, lack of transparency and dehumanisation. Ahsan (2020), in an analysis of Uber, argues that the platform provider has reduced workers' rights and that the drivers operate in a situation of *power imbalance and information asymmetries*.

Liang et al. (2021), in a study in Hong Kong, found that Airbnb had increased the cost of long-term rentals and was making housing unaffordable for citizens. Such concerns have led to restrictions being imposed on Airbnb properties in cities such as Barcelona and London. The inflationary pressures the world now faces and the housing crisis, which existed pre-COVID, may lead to regulation against the sharing accommodation sector, as it reduces the traditional housing stock, or alternatively governments may not want to introduce controls that limit the entrepreneurial spirit as economies recover.

3.4 Policymakers

Policies are designed to provide guidance that can ideally inform organisational and governmental approaches to decision-making and governance. They can take the form of well-defined plans, rules, and/or practices regarding a given issue and a commitment to a corresponding course of action within a particular system. The policymaking landscape since COVID-19 in the context of the sharing economy is complex. It encompasses persistent pre-COVID policy challenges that remain unaddressed or unresolved subsequently, in addition to considerations and implications that emerged in response to the pandemic. The complexity stems from many factors, including but not limited to the number of stakeholders in the SE ecosystem that may consequently provide policy input and therefore influence policymaking processes and decisions. Even though stakeholders belong to the same SE ecosystem they may have divergent views and perspectives and, in some cases, have conflicting interests. This is understandable given disagreement surrounding the definition and aims of the "sharing economy" and the myriad non-profit and for-profit business strategies and models that have been instituted (Gerwe 2021; Fors et al. 2021). This is particularly evident when diverse stakeholder representation is garnered across industry, government, academia, and the third sector. As such, a detailed understanding of policymakers' positionality and relationships as they pertain to the sharing economy since the pandemic requires a thorough exploration of the recent shifts in stakeholder dynamics and the very nature and evolution of the ecosystem itself. It is thus vital to articulate the drivers, prospects, roles, and responsibilities of policymakers, pointing to suitable responses and strategies to accommodate the resulting social, economic, technological, and regulatory opportunities and challenges.

3.4.1 Social

COVID-19 has significantly affected the social sphere, specifically policy relevant to *health and safety*; *privacy, security, and other socio-technical implications*; *consumer perceptions of risk and trust*; *human rights*; and the *wellbeing* of stakeholders in the SE ecosystem.

A major social shift initiated by the pandemic relates to the *health and safety* policies that were implemented on platforms and enforced by providers, in response to government mandates and health directives. From a practical perspective, health, safety, and hygiene requirements were introduced to contain the transmission of COVID-19, resulting in a redefinition of what constitutes health and safety in the SE context. This demanded the rapid institution of policies to accommodate the altered conditions, combined with an assurance from SE organisations that health and safety obligations were being fulfilled. Changes to the health and safety situation seemingly tipped the scale toward traditional providers in some sectors, such as accommodation, which were perceived to support comparatively more stringent health and safety requirements and policies (Gerwe 2021). To extend the accommodation sharing example as a case in point, "*the peer-to-peer nature of accommodation sharing changed overnight from an asset to a liability. What looked like a source of authenticity in the pre-Covid-19 world, and a gateway to a local experience and personal connection, became a potential health hazard during the pandemic*" (Gerwe 2021, page 4). As there could be no guarantees with respect to compliance with new personal hygiene and safety measures, the peer-to-peer business model that touted itself as foregoing mainstream accommodation overheads, suddenly fell short of achieving standard expectations. This posed significant risks to disintermediated supply chain stakeholders. Despite the global reach of COVID-19, the policy challenges were amplified given the distinctive policies set by organisations and governments in response to the state of the pandemic in their respective contexts (Meenakshi 2023). As a result of changes to public perceptions of health and safety due to the pandemic, it is expected that the competitive landscape may also be affected, in favour of traditional organisations. That could require SE organisations to revisit existing business and economic models (see the following section on economic considerations).

Additional social challenges to consider on the part of policymakers relate to the introduction of COVID-19 fixed and mobile technology solutions. These caused citizens to query the *privacy, security, and other socio-technical* implications of bio-surveillance SE platforms and applications for public health. For instance, digital contact tracing and tracking applications implemented in a largely reactionary fashion for health monitoring purposes during the pandemic, to augment existing manual contact tracing activities, significantly swayed public perceptions of privacy, security, and trust (Abbas and Michael 2020; Michael and Abbas 2020). This caused citizens to question the function and necessity of such technological interventions, and the corresponding mass-scale data collection that continued post-pandemic (Michael and Abbas 2022). When combined with the general growth in usage of online platforms during the pandemic and the increased frequency of cybersecurity breaches, it is understandable that there might have been a feeling of unease due to risks associated with the use and disclosure of personal information among citizens, consumers, and workers alike. The fear harboured by some end-users was that government or third-party digital application suppliers were legitimising human identification, location and condition monitoring, and physical social network relationship mapping through surveillance mechanisms (Michael et al. 2020), and that this very data, which is relied upon by organisations in the sharing economy for their daily business operations (e.g., distribution and order fulfilment), was being misused for a dual purpose or subject to retrospective use, foregoing informed consent.

As such, consumers, and workers in the sharing economy are likely to question the extent to which their privacy is maintained upon disclosing their personal information to digital platform providers, considering COVID-related challenges, changes, and experiences. Explicitly, a wealth of data and information of a potentially sensitive, personal, geographic, and other nature is being collected by platforms to facilitate desired transactions in a suitable fashion, allowing for efficacious peer-to-peer communication. Application providers offer their services inclusive of privacy policies that are intended to disclose data and information related practices affecting collection, storage, and dissemination. However, it has been asserted that these policies are often incomplete, complex, lengthy, and presented in a manner that is inaccessible to end-users due to their ambiguous and somewhat technical nature (Ebrahimi et al. 2022). This adversely impacts user comprehension of the policies and generates a sense of uncertainty with respect to the signed agreement. Ebrahimi et al. (2022) maintain that users accordingly have become vulnerable to a range of privacy, security, and other associated risks. The outcome may well be an end user's lack of willingness to share and engage in future transactions if the perceived risks outweigh the benefits. A potential path forward is the annotation of privacy policies that may aid readability by end-users to better understand the content, meaning and implications (Ebrahimi et al. 2022).

Further to the perceived threats to privacy, *customer perceptions of risk and trust* in the SE context warrant further and meticulous consideration, as does the development of risk management approaches and policies that integrate trust as a principal value and consider the impact of COVID-19 and potential future crises. A fundamental consideration in this regard is the recognition of the contextual and cultural elements that influence both definitions and perceptions of trust in providers and organisations, which need to be reflected in existing and or new organisational and governmental policies. For instance, in an article focused on customer perceptions of risk and trust, Gu et al. (2021) present four factors that influence such perceptions and the link with security. These include establishing rapport among customers, providers and communities; facility quality; transaction platform reliability; and share of value (Gu et al. 2021). While these factors are probably not the direct product of the pandemic, they are expected to be applicable to customers' willingness to engage with SE organisations given pandemic-related changes and experiences. As a result, there is a need for a balanced and proportionate approach to regulation in which any governmental regulations that are introduced would protect consumers' rights while simultaneously enabling them to use platforms to satisfy their needs (Davlembayeva et al. 2020).

In addition to customer perceptions and protections, organisations in the sharing economy will be required to consider their labour policies from a range of perspectives, inclusive of *human rights*. This ensures that any technological and other policy changes are not adversely impacting on gig economy workers and employees in competing operations, rendering them vulnerable on multiple fronts. For instance, using ridesharing as an illustrative example, the social consequences include "*limited or no worker rights, low wages and the accumulation of major debts that cannot be repaid, unforeseen supply and demand issues, corporate irresponsibility, rapid deregulation*, [and] *poor public policy responses…*" (Michael 2022, page 37). To build on this example, and with increased levels of automation in the form of Uber's self-driving program, many questions emerge regarding policy, regulation and establishing liability when autonomous vehicles are introduced by ride-sharing organisations. It has been suggested that human drivers would be utilised as backups to counteract liability, and that those drivers will likely be victims of human rights abuses such as modern indentured servitude (Michael 2022). To further exacerbate these issues is the notion of "corporate personhood", which effectively grants organisations the ability to evade responsibility, when compared to a "natural person" (Michael 2022, page 31). The *wellbeing* implications for a multitude of stakeholders in the SE ecosystem are yet to be fully understood and must further be researched with a view to ensuring that the derived insights can be transformed into suitable policies.

In relation to other aspects of wellbeing, additional social implications, some of which pertain to the deregulated nature of the sharing economy, will need appropriate policy and regulatory responses, tailored to the environmental changes due to the pandemic, among other factors. These include addressing challenges such as the disproportionate distribution of benefits among SE stakeholders, lack of employee support and accountability, and lack of compliance with insurance (Davlembayeva and Papagiannidis 2021) and more broadly, labour laws (Ahsan 2018). The employment of digital technology leads to the creation of information asymmetry, which is used by platforms to maximise their gains and undermine fair revenue distribution (Sinclair, 2016). The gaps in the labour law and other regulatory frameworks may be taken advantage of by big platforms to establish employment policies and conditions, such as platforms' liability for traffic incidents, health insurance, social security package and pensions, with little accountability for platform workers (Murillo et al., 2017, Perritt Jr, 2019, Ravenelle, 2019). Other concerns include those relevant to algorithmic bias, such as discrimination against SE workers (Barzilay 2019) and the protection of consumers (Rosenblat et al. 2017). For example, algorithms enable an automatic evaluation and ranking of drivers in systems, which may not be reflective of their actual performance. The ranking is not subject to objection as feedback is anonymous to protect consumers' privacy.

3.4.2 Economic

From an economic perspective, the pandemic generated an uncertain environment for SE stakeholders, requiring a reorientation of sorts to ensure recovery and the minimisation of loss (Meenakshi 2023), including financial, monetary and fiscal. Policies relevant to economic considerations since the pandemic relate largely to business model transformation from those favouring only expansion and reach to a new model of collaborative consumption, striving for a *balance between growth and profit* and simultaneously *profit and sustainability.* Sustainability-based models can be enacted in general and in the context of *sharing cities,* whereby *partnership as opposed to power* will be emphasised. From a policy perspective, supporting sustainability in SE ecosystems will necessitate *municipal level initiatives reinforced by government regulations,* in addition to mechanisms that would ensure a *level playing field* relevant to SE organisations and incumbent firms, and other stakeholders.

While a universally accepted definition and model of the sharing economy is not available (e.g., collaborative economy, platform economy, gig economy and crowdsourcing economy, and the specificities and models proposed and encapsulated in each of these terms), some are proposing and supporting a *new model of collaborative consumption* and production that advocates a *balance between growth and profit*. Prior to the pandemic, the economic policies and models of SE organisations often privileged or sought market domination as the main driver. The outcome of these strategies was principally the displacement of existing or traditional models of consumption in some sectors with collaborative, peer-to-peer based models. That has resulted in largely unopposed expansion and thereby unchallenged market power (Meenakshi 2023). An additional outcome was that the dominance of expansion-based strategies was even becoming frowned upon by analysts and investors alike. They were expressing their concern about sharing companies choosing growth over profitability while incurring massive operational losses (Gerwe 2021). SE organisations will now be forced to rethink their operations and business strategies and focus on profitability and cashflow rather than growth (Gerwe 2021).

It is also anticipated that policymakers will have to move beyond a profitability focus to concurrently concentrate on *balancing the traditional economic or profitability accounts with sustainability* considerations (Barile et al. 2021), in the broadest sense of the term. This includes sustainability policies that encompass more than just economic viability to those that embrace community flourishing, inclusive of people and place considerations. The resulting business models would specifically strive for a levelling of commercial and communal interests through the sharing city concept, whereby co-creation and engagement are central themes. According to Barile et al. (2021), sharing cities are about the sharing economy integrated with urban sustainable development. As such, this shifts the emphasis with respect to how policymakers will respond to contemporary sustainability challenges in a local community or city-based context. It is anticipated that the nature of this response will impact on the viability and continuity of SE organisations.

Furthermore, a key feature of this response will be the emphasis on *partnership-based models*, which will to some degree address the power-risk imbalance that has been observed in specific sectors and that requires careful consideration from theoretical and practical perspectives (Gerwe 2021). This shift in policy direction is essential in compelling a reassessment of perceptions regarding power and control, among other considerations, particularly given the reliance of organisations on local suppliers, assets, and resources in specific markets.

It may also require *municipal governance and broader government regulations* to ensure a *level playing field*, in addition to SE organisations re-evaluating their internal business development policies and business models. Failure to do so may also affect the survival of organisations, as follows: "*While [sharing economy] brands could succeed in the pre-COVID period despite opposition, and by building on their size and power, the post- COVID period has brought in the harsh realities of declining investor support and low demand*" (Meenakshi 2023, page 461). The latter is demonstrated in the ride sharing industry, resulting with an oversupply of drivers who had purchased vehicles they could not afford to pay back and low fare costs. The distance covered and the time it took to reach an originating point of a customer (let alone a destination), could not be recouped in terms of the cost of the gasoline, labour, insurance, and other operating expenditure.

The outcome over time resulting from initial supply chain disintermediation was that the market hit a cross-over point between a hybrid environment of traditional suppliers who had to play by traditional rules, and individual new entrants who were effectively self-employed as opposed to employees. Both types of operators found themselves in a saturated market, with the traditional suppliers shifting models to emulate what was perceived to be a successful business model. That is, traditional taxi suppliers sought to mimic the same strategies adopted by ride sharing companies (e.g., the utilisation of location-based smartphone applications), but were unable to compete save for government pre-determined contracts that were linked to guaranteed fares for traditional taxi companies. This was exacerbated during the COVID-19 lockdowns when drivers saw a steep reduction in callouts, for example, and continued to work because they had to repay prohibitive loans and for reasons of livelihood, despite the risks of contracting COVID-19.

SE organisations now appear to realise their predicament. The challenges are great, and many firms are seeking to enter mutually beneficial relationships to partner with a variety of stakeholders in the SE ecosystem. These include government agencies who can offer specialist but repeat contracts; service providers that may

carry some of the costs in the supply chain but also receive commensurate gains; and the community at large, with the hope of raising consumer trust in SE brands particularly with respect to safety, the provision of reliable services and equal access (Meenakshi 2023). As such, partnership-based policies, reinforced by municipal-level collaborative initiatives and government regulations are likely to feature as priorities for policymakers.

This is imperative given that the economic impacts of the pandemic were not equally felt by stakeholders in the sharing economy ecosystem, as noted in select literature on commercial sharing platforms (Gerwe 2021). Thus, new policies and regulations are also required to ensure equitability and a *level playing field* relative to SE organisations and incumbent firms, and other stakeholders.

3.4.3 Technological

Shaping technological policy from an organisational and governmental perspective given the challenges that emerged during and after the pandemic is expected to entail consideration of a mix of incremental and radical technological innovations, likely to be applied selectively across sectors, communities, and societal contexts. Some of these technologies emerged prior to the pandemic, while others were necessary because of the shifts across the social and economic spheres. Policies pertaining to *privacy and technology; rapid digitisation and automation; digital hubs / community-based portals; and reinstating the link between virtual and physical spaces,* will inevitably introduce both intended and unintended consequences and ecosystem dynamics that policymakers will have to contend with.

In the first instance, the privacy, security, and other socio-technical implications presented earlier will be key policy agenda items informing the management of *end-user privacy risks, both in online and physical spaces*. End-users, in this context, refer to both service providers and consumers, who are required to divulge their personally identifiable information in a digital environment in exchange for access to platforms and corresponding services. While privacy policies are available, end-users face challenges in comprehending their content and implications. As such, annotation techniques are required to assist both developers in the creation of more intelligible privacy policies, and end-users in engaging with more accessible policies to make possible informed decisions when interacting with SE organisations (Ebrahimi et al. 2022).

Accessibility of privacy and other policies relevant to the role of technology will become progressively important. This is due to both the centrality of technology in mediating and facilitating relations, and the complexities originating from increased digitisation and automation. It will involve reviving pre-COVID policy discussions, while also addressing challenges emerging because of the pandemic. Such challenges may be general and recognised issues stemming from the incompatible pace of technological developments against the introduction of suitable regulatory mechanisms, often referred to as the pacing problem (Marchant 2011), in addition to more specific discussions that are unique to the SE context. For example, traditional companies are less agile than SE stakeholders because their business models require physical presence, asset management, and stockpiles of inventory. In contrast, stakeholders in the sharing economy might be small-scale players with an international footprint. The asymmetry in the capability to innovate at the service level means that policies and regulations almost always lag behind the technological innovation. It has been maintained that governments' investment in creating new jobs through rapid digitalisation is imperative to capitalise on the opportunities presented by COVID-19 (Dabija et al. 2022). However, it is also important to reflect on the social and regulatory implications of technological solutions and of automation, and the manner in which the deployment of such solutions alters the very nature of the SE ecosystem and the policymaking landscape. For instance, Michael (2022) cautions about the *dangers of innovation and automation* in the context of the ridesharing organisations, drawing on the example of Uber's deployment of autonomous vehicles and the ensuing undesirable consequences, ranging from diminished worker rights through to loss of life. Although technologies, such as artificial intelligence (AI), will inevitably be embedded within the SE ecosystem, proactive approaches to governance are necessary (Michael 2022). This is so as, with the integration and deployment of AI-based and other sophisticated (and automated) technological systems, third party providers emerge as critical actors in the SE ecosystem. Current organisational and governmental policies are ill-equipped to accommodate these actors and determine liability in certain cases. These may include, but are not limited to, cases resulting in damage, accidents or even pedestrian or driver fatality, as has been previously demonstrated with respect to autonomous vehicles in ridesharing applications (Michael 2022).

The above example points to the serious ramifications of introducing breakthrough technologies void of a fitting policy or regulatory response. However, there are other examples that detail the potential benefits of introducing incremental technological changes to support collaboration in the interest of fostering deeper customer relationships and community building. These approaches tend to be geared toward improving trust by utilising technology to create a forum for capturing customer experiences, through *collaborative platforms, online spaces, digital hubs and or community-based portals*, which will be a crucial change particularly with respect to the SE after the COVID-19 outbreak. For instance, and relevant to the tourism sector, "*[t]his change is made possible by offering consumers online space to present their experience of a platform, raising consumer awareness regarding the use of collaborative platforms, and facilitating users' access to such platforms. The*

COVID-19 restrictions have the power to force sharing economy platforms to improve their services, not only by recovering lost profits but also by becoming more customer-oriented" (Dabija et al. 2022, page 14). These improvements can also be achieved by platforms through enabling communication to enhance the understanding of consumer interests and preferences, increase a sense of community belonging and therefore the likelihood of reciprocity in stakeholder relationships (Davlembayeva et al. 2021).

With reference to the role of policymakers in this situation, policymakers will also be increasingly required to work in a collaborative sense with a range of SE stakeholders. To some degree, larger SE organisations have attempted to increase broader community engagement and interaction through portals such as https://www.airbnb.com.au/cityportal, which is intended to facilitate partnership through insights, regulatory compliance opportunities, communication, and other forms of support (Airbnb Inc., 2023). It is expected that such engagement opportunities will be indispensable across the SE ecosystem into the future, if not mandatory to retain customers and attract new ones.

The emphasis on virtual engagement mediated by technological applications must also be extended to physical spaces, as during the pandemic the *link between the virtual and physical* was fractured in some instances, and dissolved in others, potentially creating hybrid spaces. To summarise, the use of mandated lockdown measures, in some markets extreme, resulted in the elimination of non-essential travel, and acted to sever the link between the physical and the digital in the sharing economy. While it was business-as-usual for online stakeholders who relied on digital interfaces for participation, what was unravelling in the physical world was in stark contrast. Movement was halted, and individuals were unable to congregate in groups, requiring special provisions to enter warehouses, supplier premises and more. The restrictions during the height of COVID-19, in some instances, meant that meeting stakeholders in the supply chain was prohibited if not impossible (Gerwe 2021, page 4). This indicates that presently and, in the future, policymakers need to concentrate on reinstating the link between virtual and physical spaces, in addition to becoming more self-sustaining in local contexts, in cases where national or international linkages are interrupted.

3.4.4 Regulatory

In terms of the regulatory perspective and considerations, we can revert to the lack of a universally accepted definition of the sharing economy as introducing a level of convolution that will inexorably impact on policymaking endeavours at the individual, organisational, municipal, national, and international levels. When combined with the inertia and other complications resulting from the pandemic, complexities are amplified and the need for proportionate regulation is evident. Regulatory considerations are largely related to *addressing risks in context while countering homogeneity*, shifting from the global to the local through a focus on *sharing cities*, recognising the power of *different modes of governance*, *displacing reactionary approaches* with proactive governance, introducing *robust frameworks for municipal governance*, and assuming a *multi-stakeholder perspective for regulatory reform*.

Risks are prevalent in the SE ecosystem, and have often been flagged, but not always reflected in policy. This may be due to many factors, aggravated by the pandemic. This may also be attributed to the lack of consistent definition concerning the sharing economy and corresponding activities and practices which are diverse, difficult to regulate and require a balance between two conceivable extremes, that is, promoting the sharing economy and therefore contributing to its growth, and regulating the sharing economy and potentially inhibiting its growth. Furthermore, SE policies are *contextual*, and usually dependent on and driven by the nation-state in question and its unique socio-political context, as evidenced in a study of the policies and politics of Japan and Sweden (Fors et al. 2021). Fors et al. (2021) state that the idea of policymaking and indeed regulation cannot be treated as a uniform activity, as they may be created for potentially different concepts of the sharing economy and related practices.

While covering nation-state level policies and politics is important, there is also an increased recognition of the significance of the local city context, which emerged as an important consideration during the pandemic and is likely to continue. This awareness pre-dates COVID-19 and was initially in response to the largely unrestrained growth of select commercial organisations and their consequent impact on existing marketplaces. Those developments in marketplaces resulted in "*a potential negative backlash of [the] sharing economy on cities and its inhabitants, in terms of unfair competition, labor exploitation, rising housing prices, gentrification, and so on*" (Barile et al. 2021, citing Martin 2016; Scholz 2014; Schor 2016; Zvolska et al. 2019), all scenarios which require regulatory reform. To counter these repercussions, some are calling for *increased emphasis on the sharing city*, in sectors such as accommodation for instance, moving from a global to local focus (Gerwe 2021). This change in focus would ideally support, across all sectors, policymaking efforts that privilege local communities and would inspire community- or city-based growth opportunities. Additionally, the city would be central to targeted laws and policymaking processes, whereby local government bodies (that is, municipalities) would play a major role in facilitating and or inhibiting sharing through incentivisation schemes and coordination / governance systems, respectively, toward urban sustainability transitions (Barile et al. 2021).

These transitions will probably advance beyond traditional policy settings and regulatory mechanisms to consider other forms of governance, incorporating a broader perspective. This perspective requires a proactive philosophy and may involve consideration of *different modes of governance*, inclusive of novel analytical frameworks and the *displacement of current reactionary approaches to governance* (Palgan et al. 2021). The potential benefits of this approach include proportionately regulating various aspects relevant to consumers, competition, and technology and innovation, among other areas. Policymakers will thus need to facilitate a shift in focus, as currently governance and regulation models tend to be targeted at the major, transnational organisations (e.g., DHL), and well-known international SE brands (e.g., Uber), though select activities remain unregulated, if they fall outside of this scope. The consequence of this is (inadvertently) disregarding other stakeholders. This requires immediate attention and can be bolstered by better governing the sharing economy at the municipal level and integrating additional stakeholders (e.g., users and employees) in legal and policy deliberations to offset the current prominence of the organisational view. For instance, in terms of approaches to governing the sharing economy, both locally and globally, policies can realistically be (and are typically) instituted at the municipal level.

Policies must be supported by *robust municipal level governance frameworks* that clearly articulate the required regulating mechanisms and roles. For instance, an analytical framework for municipal governance of the sharing economy has been proposed in the literature by Palgan et al. (2021). The framework was developed through a literature analysis and tested by way of mobile research labs in Berlin and London and proposes a series of municipal governance mechanisms: regulating, providing, self-governing, collaborating and enabling. The roles relevant to these mechanisms, for instance, include the role of regulator when considering the "regulating" mechanisms, and the roles of "communicator" and "matchmaker" when considering the "enabling" mechanism. From both a general and regulatory perspective, such frameworks would involve the identification of a range of government roles, namely, government as regulator, as enabler, as provider and as consumer. These roles range from a given municipality's role in introducing and enforcing formal regulation; to supporting and incentivising sharing practices; to facilitating sharing through the provision of the necessary infrastructure; and finally, to self-governance activities in view of consumption (refer to Barile et al. 2021 and Palgan et al. 2021 for a detailed overview of these roles).

In these diverse roles, municipalities must seek to harmonise the benefits and challenges associated with SE practices (and organisations), either through proactive, collaborative approaches or by enforcing measures intended to limit any adverse effects of SE practices and organisations (Palgan et al. 2021). There are, however, a range of challenges, which are well documented in the literature, specifically with respect to the introduction of regulatory mechanisms in response to prominent platform providers and their (lack of) observance with local regulations and city-specific constraints (Barile et al. 2021). These challenges are magnified given the lack of user-based research concerning legal considerations and challenges (e.g., rights and protections), as was reported in a bibliometric analysis (Nawi et al. 2022). According to Nawi et al. (2022), regulatory reform will be required in relation to consumers, end-users, and employees from the perspective of employment / labour laws, discrimination, and ethics, among other issues.

This points to *collaborative regulatory reform processes*, which would enable clarity as to the nature of the policy setting, legal considerations and the multitude of roles that can be assumed by government, and indeed other stakeholders, in the SE context. Importantly, stakeholders such as organisations will be required to assume a more active role in policymaking processes. As a result of COVID-19, SE organisations have been actively interacting with governments and the community in the provision of relevant data, and it is expected that such relationships will be nurtured post-pandemic by these organisations through the establishment of public-private collaborations, and for purposes such as shaping regulation, and encouraging positive government and public perceptions (Meenakshi 2023). This regulation may take several forms. For example, in a paper that investigates the paradoxes and contradictions of the sharing economy, Davlembayeva and Papagiannidis (2021) compare paradoxes prior to and post pandemic, and their relative impact on social, economic, and environmental sustainability. The authors call for future research to address the paradoxes by exploring the applicability of informal and formal regulatory mechanisms, that is, soft and hard laws that may serve to constrain and or support social, economic, and environmental developments in the SE.

4 TOWARDS A MORE SUSTAINABLE SHARING ECONOMY

The COVID-19 pandemic was predicted to be the end of the sharing economy. The concepts and practices (i.e., non-ownership, redistribution of underutilised resources, social sharing) that were at the heart of the socio-economic system did not align with changing societal expectations and needs. During the pandemic, the sharing economy slowed down to a point where its revival seemed to be a long process, and in some instances almost impossible, requiring the overhaul of many functions of platform companies and the reorientation of their services. Other stakeholders were equally challenged, also needing to understand, adapt and respond to altering social, economic, technological, and regulatory conditions. Consequently, when we consider the future of the SE, the long-term impact of these transformations is uncertain. On the one hand, it is certain that all stakeholders

have been experiencing challenges, such as human rights infringement, reduced social interaction, a decline in trust, economic insecurity, lack of protection, and physical and information security risks among others. On the other hand, it is also certain that the emerging gaps in the socio-economic and political domains stimulated a range of developments aimed at filling those gaps, which may promise a better future for the sharing economy and all stakeholders involved.

This paper presents, as the outcome of the comprehensive multi-stakeholder review above, a roadmap, identifying key research themes, considerations and policy gaps that would ideally support, and provide recommendations to, multiple stakeholders in the SE ecosystem to shift toward sustainable models and practices (Figure 2). This roadmap takes the form of a synoptic table, where timeframes for implementation can be applied by a given stakeholder given their specific context. The table highlights the interrelated and overlapping areas that warrant strategic, tactical, and operational attention, as SE stakeholders navigate an increasingly complex environment after the COVID-19 outbreak.

Figure 2: A roadmap of research themes, considerations and policy gaps

	SOCIAL	ECONOMIC	TECHNOLOGICAL	REGULATORY
CUSTOMERS	Value co-creation	Digital divide impacting economic equality	New offerings	Data protection regulation
	Reduced opportunities for social relationship building	Economic value for B2B platforms	New applications of existing platform	
	Lower trust	Economic value for B2C platforms	Use of advanced technology	Information asymmetry
	Infringement of human & social rights		Use of security-enhancing technology	
PROVIDERS	Weak trust toward platforms	New employment opportunities due to market fragmentation	Developments in digital environment / Digital transformation	Health & safety
	Strong solidarity among providers	Higher control over work conditions	Emergence of cooperative platforms	Labour-related
	Social inclusion	Uncertain employment status	Fully automated services	Innovation-related
	Social (in)security	Economic instability	Growth of provider-oriented platforms	
	Weak ties with customers (bonding as opposed to bridging)			
PLATFORMS	Environmental stability & sustainable credentials	Hygiene requirements	Innovation in accommodation (Split Stays, smartification, virtual tourism)	Evasive entrepreneurship
	Support of external stakeholders (social responsibility)	Reinstated revenues	Innovation in food delivery	Power imbalance & information asymmetries
		Increased demand for new sharing economy markets	Self-driving business	Governmental control through regulation against SE stakeholders
POLICYMAKERS	Health & safety	Balance: growth versus profit	Privacy & technology	Addressing risk in context
	Trade-offs: privacy, security, socio-technical	Balance: profit versus sustainability	Rapid digitalisation & automation	Global to local: sharing cities
	Consumer perceptions of trust & risk	Partnership-based models not power	Digital hubs / community-based portals	Models of governance
	Human rights	Level playing field	Link between virtual & physical	Proactive regulation
	Wellbeing	Municipal-level initiatives		Municipal governance frameworks

A preliminary evaluation of Figure 2 suggests numerous insights when considering a sustainable SE. In the first instance, the themes, opportunities, and challenges observed across social, economic, technological, and regulatory domains are interrelated. For example, when considering the policymakers' perspective, perceptions of trust and risk (social driver) are heavily influenced by the deployment (at times in a reactionary fashion) of certain technologies (technical driver) during the pandemic. It is therefore important to understand the nature of these linkages as an immediate first step to operationalising the roadmap in Figure 2. Secondly, there is a blurring of boundaries in terms of attribution of a theme or themes to a particular driver / consideration, especially when comparing thematic priorities of SE stakeholders. As an example, consider the legal dimensions of health and safety in the context of providers, compared with the social dimensions of health and safety in the context of policymakers. The main implication here is that the application of the proposed roadmap of considerations and policy gaps must include an integrated treatment of themes, which are prioritised relative to SE stakeholders, rather than focusing on the social, economic, technological, and regulatory considerations and drivers in isolation. Significantly, the proposed roadmap provides the integrated perspective that multiple and diverse stakeholders may build upon. Thirdly, all themes can directly be associated to a policy and a regulatory basis, gap, or recommendation. As such, moving toward a sustainable sharing economy will require a detailed

policy and regulatory investigation, inclusive of multi-stakeholder consultation, in both the local and global contexts. Lastly, it is evident from this multi-stakeholder assessment that a sustainable SE necessitates shared responsibility for a sustainable outcome, supported by suitable multi-level policies. Future developments and research opportunities relevant to multiple stakeholders need to be thoroughly appreciated. A selection of these developments and corresponding questions are provided in the following section.

5 FUTURE DEVELOPMENTS AND RESEARCH OPPORTUNITIES

The proposed multi-stakeholder roadmap and comprehensive assessment of the social, economic, technological, and regulatory drivers offer countless areas for future development and research, ideally informing and influencing policymaking processes in a positive sense toward a sustainable SE across the respective drivers. Future research opportunities are presented below, relative to each driver.

5.1 Social

To advance research on the social value drivers of the sharing economy for providers and customers (and indeed other stakeholders in the SE ecosystem), future research needs to explore how the tendency towards reduced social interactions and the shift in consumers' preferences towards local offerings redefine the social benefits (i.e., social ties, trust, belonging to communities) of the participation in the sharing economy. It is worth examining how and what social capital is created in different SE sectors. Relevant questions to frame future research related to social considerations include:

- What constitutes value co-creation from the perspective of customers in sustainable SE models?
- Is there a way to support relationship building and nurture existing relationships among SE stakeholders?
- How can trust, human rights and social rights infringements be addressed?
- How can social ties be rehabilitated relative to multiple SE stakeholders?
- How can SE firms balance their responsibilities to their investors and shareholders with their responsibilities to other stakeholders in the SE ecosystem?
- Can SE firms satisfy the demand/s of shareholders while benefiting society through, for example, moving to sustainable business models?
- How do the challenges SE firms face compare to other types of firms?
- What are the challenges in encouraging platform participants to behave more sustainably?
- Are government and industry-based incentivisation schemes required to support the development and nurturing of sustainable SE models?
- How can privacy, security and other social-technical challenges be managed?
- How can wellbeing be both defined and attended to, relative to sustainability and multi-stakeholder interests and requirements?

5.2 Economic

The transformation of the economic value propositions of platforms requires empirical insights into long-term implications for customers and providers in terms of their economic security. The corresponding policy implications must also be pronounced, and suitable policy and regulatory mechanisms developed. Relevant questions to frame future research with respect to economic considerations include:

- Are provider-oriented and cooperative platforms economically sustainable?
- Will the model of community-oriented platforms survive the competition with big platform companies?
- What can motivate consumers to engage with community-oriented platforms to ensure their growth?
- Can balance be achieved in underlying business models that focus on balancing growth versus profit and profit versus sustainability?
- Is it realistic to expect a balancing of profit and sustainability?
- Will SE firms be able to use their brands and assets to enter new markets?
- How can a transition to partnership-based models (as opposed to those that privilege power) be encouraged?
- What shape or form will incentivisation schemes take to ensure economically sound, municipal level, sustainability-based SE models and practices are considered viable options for stakeholders, specifically platform companies?

5.3 Technological

To further the understanding of the impact of technological developments on stakeholders, researchers need first-hand evidence about the opportunities and risks resulting from the introduction and further development of digital technologies / capabilities and SE service automation. Among the potential challenges

and risks are security and privacy concerns and their role in driving participation. The areas that need further investigation include the impact of provider-owned platforms on the redistribution of income among providers and the improvement of work conditions. Relevant questions to frame future research regarding technological drivers include:

- Can the development of autonomous technology make ride-sharing and online meal delivery profitable?
- How will such developments conflict with the needs of other participants in the SE ecosystem?
- How would such a transition best be managed, in terms of safety and the impact on other participants?
- How will the opportunities, challenges and risks associated with new technological driven offerings be managed in a manner that benefits multiple stakeholders in the SE ecosystem?
- How do we define a sustainable SE where innovation is not stifled, whilst ensuring that potential risks to stakeholders are appropriately managed?
- In moving toward a sustainable sharing economy, how do we think about sustainability across virtual and physical spaces to ensure the sustainability of both people and places?

5.4 Regulatory

When considering the legal, policy and regulatory considerations and drivers, future studies should contemplate how a deep awareness of the SE ecosystem, as it is likely to emerge in an environment shaped by COVID-19, and from a multi-stakeholder perspective, can be generated in a manner that will guide and inform policymaking at multiple levels and in a range of contexts. It is evident that a central feature of current and future policymaking processes will be the relationship and collaboration focus, oriented toward the capturing and communication of the values of SE stakeholders. As such, qualitative studies that identify these diverse stakeholder values and express them in a way that will enable policy co-creation are crucial. Relevant questions to frame future research that accounts for legal, policy and regulatory considerations include:

- Will some jurisdictions feel emboldened to place restrictions on the sharing economy in the still fragile economy?
- What, if anything, will change about the relationship between governments, regulators, and SE firms in different jurisdictions in the years ahead?
- Will regulators assess the power of the platforms and their financial relationships with the providers?
- How will the global to local emphasis and dynamic best be managed in the complex SE ecosystem?
- What are the defining features of sustainable sharing cities?
- How can current governance models, including municipal governance frameworks, be evaluated with a view to their redevelopment in the context of a sustainable SE?
- Are new governance models required?
- What proactive regulatory mechanisms are suitable for encouraging a shift to a sustainable SE, and (how) can these models work in a real-world context?

Many other specific recommendations for future research can be drawn; however, it is vital also to step back and seek answers to a series of broader questions. For example: Has the pandemic compelled a transition to more sustainable sharing models that can deal with future uncertainty and potentially black swan events? Is it possible to build SE ecosystems that are antifragile (Taleb 2012; Abbas and Munoz 2021) in the face of such future events? And specific to policymakers, and the broader SE ecosystem stakeholders, is it reasonable to expect dynamic policy that can readily adapt to current and future disruption and uncertainty?

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