



Transport  
Innovation  
Gender  
Observatory

# Deliverable 1.4

**Ethical Issues related to Gender  
Sensitive Smart mobility: How can  
Smart Mobility become a more  
intersectional form of mobility justice?**

**SOCIETAL Travel CIC**

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This project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 824349

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## Deliverable fact sheet

<b>Document name</b>	How can Gender Smart Mobility become a more intersectional form of mobility justice? Beyond mainstreaming – incorporating intersectionality into Transport Policy
<b>Responsible partner</b>	Societal Travel CIC
<b>Deliverable number</b>	1.4
<b>Due date of deliverable</b>	July 2020 M20
<b>Actual submission date</b>	6 <sup>th</sup> August 2020
<b>Version</b>	v.1.1
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<b>Work package no.</b>	WP1
<b>Work package title</b>	Project Management
<b>Work package leader</b>	Coventry University
<b>Work package participants</b>	CU, UCPH, VTM, SBOING, INTER, INTECO, SC, TUIL, LEVER, ITENE, SOCTR, POLITO, LGI, SIG, VTI, P&R, AIM, EMEL, TORINO, WMCA

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## Abstract

Central discussions arguing the advancement of women and transport, as both users of and employed within the sector, have not really advanced in the past 20 years. While numerous tools have been put in place to support women's participation in the transport labour market, the figure remains low, with women only accounting for 22% of the workforce in the European Union. Women's mobility patterns have also not changed significantly over time, their journeys are still shorter and more complicated than those of men. In order to improve opportunities and outcomes Gender Mainstreaming has been adopted as an objective of transport policy in Europe but adoption at national level has been fragmented. Mobility needs are evolving, Gender relevant aspects of a smart city, mobility, safety and security, employment and sustainability have already been identified as fields of action in previous research however whilst Smart Mobility is advancing choice and offering more sustainable modes of transport it is not clear whether these advancements will be advantageous to all groups in society.

This paper discusses ethical issues relating to equity in mobility with a focus on intersections of gender, race and class. We relate how unequal access to space in the context of smart mobility increases vulnerability to social exclusion related transport poverty and discuss how incorporating the theory of intersectionality into transport policy can build on advancements already made through the adoption of gender mainstreaming. Our discussion of the operationalization of intersectionality in smart mobility is a timely one in the era of COVID-19 and has to become a catalyst for more equitable and sustainable smart mobility.

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## Publishable summary

Central discussions arguing the advancement of women and transport, as both users of and employed within the sector, have not really advanced in the past 20 years. While numerous tools have been put in place to support women's participation in the transport labour market, the figure remains low, with women only accounting for 22% of the workforce in the European Union. Women's mobility patterns have also not changed significantly over time, their journeys are still shorter and more complicated than those of men as a result of socio-cultural norms. To improve opportunities and outcomes Gender Mainstreaming has been adopted as an objective of transport policy in Europe but adoption on a country level has been fragmented. Mobility needs are evolving, Gender relevant aspects of a smart city, mobility, safety and security, employment and sustainability have already been identified as fields of action in previous research however whilst Smart Mobility is advancing choice and offering more sustainable modes of transport it is not clear whether these advancements will be advantageous to all groups in society. This paper discusses ethical issues relating to equity in mobility with a focus on intersections of gender, race and class. We relate how unequal access to space in the context of smart mobility increases vulnerability to social exclusion related transport poverty and discuss how incorporating the theory of intersectionality into transport policy can build on advancements already made through the adoption of gender mainstreaming. Our discussion of the operationalization of intersectionality in smart mobility is a timely one in the era of COVID-19. Emerging evidence shows the effects of the pandemic are gendered and has exposed deep structural inequalities in society, particularly for women, BAME (Black and Minority Ethnic) communities and low-income households. The ongoing pandemic crisis could potentially set back women's progress in the labour market and has also had a significant impact on the transport sector. In the face of economic downturn, the post COVID-19 landscape could also encourage modal shift as we seek safer and more sustainable forms of transport. This has to become a catalyst for more equitable and sustainable smart mobility.

# 1.Introduction

Central discussions arguing the advancement of women and transport, as both users of and employed within the sector, have not really advanced in the past 20 years. While numerous tools have been put in place to support numbers of women working within transport, the figure remains low, with women only accounting for 22% of the workforce in the European Union. (E.C.,2020). Public transport use is highly gendered, in the UK in 2017 a third more women travelled by bus than men and a third more men travelled by rail than women (Gill, 2018).

Transport facilitates access to the labour market, healthcare and education system and there is a wealth of evidence that supports that women's transport needs differ from those of men (Sanchez & Gonzalez, 2016; Shirgaokar & Lanyi-Bennett, 2019). Historical intersections of gender, race and mobility persist in society with resulting inequalities in both the way groups are employed and access transport for employment, goods, services and leisure activities.

Gender relevant aspects of a smart city, mobility, safety and security, employment and sustainability have already been identified as fields of action in previous research. Emerging research that views smart mobility through an intersectional lens is gaining traction. Historically transport research has typically examined intersections such as gender and class (Bostock, 2008) or gender and age (Hjorthol, 2013; Ahern & Hine, 2012) but the trinity of gender, race and class found in other fields of research such as health, has been rarely seen in combination in the transport research literature. Our paper focuses on a Global North perspective however we include discussion of the Global South where there are similarities. Mobility equity encompasses not only issues of sustainability but those of race and gender violence and breach of human rights. Protest movements such as #Metoo and Black Lives Matter are giving rise to the collective mobility justice movement and are amplifying the voices of those marginalized in society, but it is not enough to simply hear those voices.

This paper refers to 'mobility justice' as a paradigm, as defined by Sheller (2018) that accounts for fairness, equity and inclusion as a frame that considers dynamic patterns of mobility and spatial relations. This means going beyond the idea of static or programmed mobility, as infrastructure, spatial design and eco-social sustainability informs and are informed by people's movement and commuting. In sum, no progressive policy can achieve for dynamic equilibrium in urban planning if sectors of society are being excluded or simply tokenised. Participation from all levels of society is needed to influence outcomes and enduring equity in transport planning, as diversity in planning leads to diversity in the making, long term. As Sheller tells us, mobility does not always equate freedom, and to think mobility justice is to think (im)mobility as well, and how to overcome the history's movement restraining contingencies over minorities:

We know that mobility does not always equal freedom. But is the concept of spatial justice enough? What if we understood locations or places of dwelling such as cities not simply as “spatial” but also as mobile? We could then envision space as a regime of control over movement, and we could begin to challenge mobility regimes as methods for making spatio-temporal formations of power. (p. 40-41).

The impact of the COVID- 19 pandemic has had a seismic effect on economies worldwide. The aftermath of the first wave of this pandemic crisis could be described as a post disaster landscape (Sheller, and has highlighted the dynamic interdependence and fragility of complex mobility systems and brought about a disruption of the global discourse of unfettered mobility as a way of life (Hannam, Sheller & Urry, 2006).

This paper intends to start a robust conversation about the distribution of benefits and burdens at the intersections of diversity in transport equity in this new era. We will discuss ethical issues relating to equity in mobility with a focus on intersections of gender, race and class. We relate how unequal access to space in the context of smart mobility increases vulnerability to social exclusion related transport poverty and discuss how incorporating the theory of intersectionality into transport policy can build on advancements already made through the adoption of gender mainstreaming into transport policy and lead to a richer understanding of transport inequality. Intersectionality recognises that adopting a one size fits all policy to address complex inequalities does not work. Intersectionality does not focus on one specific characteristic such as gender or race, but instead reflects the lived experience and subject positions created by intersecting locations of multiple identity characteristics (Hankivsky & Cormier, 2011).

We will discuss ethical considerations on access to space and power relations that contribute to inequality. We introduce intersectionality and Smart Mobility and suggest how the theory could inform transport policy. Finally we discuss the restriction of mobility caused by the impact of the COVID-19 pandemic with emerging evidence highlighting the exposure of deep structural inequalities in society, particularly for women, BAME (Black and Minority Ethnic) communities and low-income households. The ongoing pandemic crisis could potentially set back women’s progress in the labour market. It has also had a significant impact on the transport sector in the face of economic downturn but could also encourage modal shift as we seek safer and more sustainable forms of transport.

## 2. Mobility Justice

Ethical considerations to social life are perpetually discussed in our culture and literature, with debates over society's inequality present from Homer's millennial writings (Edwards, 1993) to More's utopian imaginations in 15th century's England. Immigration, caste, socio-economic status and other social markers have always been debated and present in socio-geographic and urban planning. Service provision should strive for equality, but still to this day people have their opportunities influenced by their identity or group belonging (Elias and Scotson, 1994). Planning and project can help to prevent such bias, positively influencing urban planning in more equal ways.

Drawing experiences from cities that adopted ethical approaches in planning, Barrett et al (2016) discusses the idea of an ethical framework for urban development and management. Transport provision and planning is our focus, being debated by the authors as an essential part of this scenario. TInnGO seeks to inform service providers, stakeholders, councils and more on the importance of inclusion and diversity in transport development and provision. Much of the work in that direction has been negatively affected by the pandemic, halting the path to equality in transport, which we are still to feel the long term effect of. With the government recommendations to avoid public transport, how will service providers carry their ongoing equality measures, rethinking their ethos and being open to change and inclusion?

One concern in this section is the possible recrudescence of public and private spaces in terms of gender, race, class and disability. The constant worry and mediatic attention to how the economy is being affected, more than our socioeconomic life and quality of life, is an expected response from countries in crisis (Arendt, 1989). For the author, countries tend to interrupt ongoing policies related to social justice during periods of crisis (such as the transport system and its related areas) hampering its long-term effects. Sheller (2018), thinks of freedom of mobility as a spatio temporal process of disembedding that which occurs in particular kinds of space. However, this is troubling as those who are able to exercise freedom of mobility regardless of other preferences can use it to shape public spaces in ways which increase their own mobility at the disadvantage of others, i.e., through privatisation or discouraging the public from using formerly free spaces. Mobility injustices are not the result after people enter a space such as traveling in vehicles, gathering on the streets or migrating, instead they "are the process through which unequal spatial conditions and different subjects are made" (Sheller, 2018 p,21) The relation between public and private spaces is greatly affected by transport provision, as a way of access to cultural and economic services which influences people's class and social mobility, as shown by the Department for Transport's 2019

review<sup>1</sup>. Another aspect connected to transport and mobility is visibility, as gender roles and other identities have historically been bound to spaces where dynamics of power were never equal.

DaMatta's (1987) analyses of the public and private spaces as ideal types tell us how the public life, the 'street', has been historically connected to ideas of change, cultural production and power. Domestic spaces, the 'house', have historically been losing its importance. Ties of gender violence to domestic spaces, as well as racial violence in public spaces are examples of how the current pandemic might compromise progress on these and other equality struggles. A quick semiotic exercise on google images and YouTube show how most public figures, politicians and doctors, are male, reinforcing public life's administration as a male-oriented area. At the other pole, the actual politics of care is down to the NHS (UK National Health Service), with most of its frontline staff comprising of female and BAME people, associating care and domesticity to private/home life. Such connections between domesticity and private spaces have been explored by the Disability Rights Commission in the United Kingdom, showing an intersectional correlation of gender and disability care, where care roles are expected and usually assigned to mothers, sisters or close female friends. This dualistic view (male/female - public/private) portrayed in the pandemic can reinforce identity stereotypes, confining gender to specific roles, hindering positive visibility and cultural ideas of gender, disability and race.

It is worth noting that the 'save the NHS' movement, albeit an attempt of empowering the service, might contribute to such stereotypical ideas of care and gender. NHS nurses and health visitors are majorly women and BAME<sup>2</sup>, likely to be employed in less senior roles and lower paid jobs<sup>3</sup>. In 2019, NHS's report of the Workforce Race Equality Standard showed only 3.5% BAME chief nurses, for instance. Frontline BAME and female staff are less remunerated, unlikely to be in less senior roles and are amongst the highest casualties so far<sup>[3]</sup>. The symbolic power and praise attributed to NHS staff does not reflect their actual working conditions and social mobility. Adding to this, lower paid jobs are also connected to the need of staff to use public transport, increasing their vulnerability to the virus. This showcases a clear intersectional problem of race and class, where access to services and one's job is limited by transport availability from an already vulnerable group. Another effect of the pandemic and gendered spaces is the rise of domestic

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<sup>1</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/843487/Transport\\_and\\_inequality\\_report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/843487/Transport_and_inequality_report.pdf)

<sup>2</sup> Such vulnerability can be increased if we consider how psychological effects of stress and work conditions can hinder staff's immunity system.

<sup>3</sup> <https://digital.nhs.uk/news-and-events/latest-news/narrowing-of-nhs-gender-divide-but-men-still-the-majority-in-senior-roles>

violence<sup>4</sup>, one of the many cultural-historic inequalities being highlighted, as the pandemic highlights our gendered, racial and ableist social configurations. Research on race and transport has much to progress, and the lack of racial equality policies fail to generate awareness on driving as a white privilege (Seiler, 2007). They fail in accounting for unequal patterns of mobility when it comes to race demographics and socio-geographic areas with less racial/ethnicity visibility (Ward, 2009). The fact that public transport options are limited in certain groups is worrying, as commuting outside of your 'expected area', at certain hours, is something people of colour have to worry about, with police bias still existing in the country. In 2017, the Criminal Justice Alliance reported how black people are now six times more likely to be stopped and searched by the police, an increase from previous years, being higher depending on certain regions of the country. Race and class are here dynamically affecting certain groups and individual's possibility and access to a variety of services and leisure, with private and public transport far from being equally available to them. This limited availability and freedom of movement impacts groups in many ways, socioeconomically and more, as class mobility and professional opportunities are linked to cultural acquisition and cultural capital (Bourdieu, 1984). Limited access to cultural capital by certain groups deepens society's negative perceptions and stratification of one's ethnicity/race, their confinement to certain spaces and abilities. This can be ameliorated by fairness in transport and the consequent positive visibility of minorities in all spaces.

If freedom of movement was already an historical issue for people of colour, we need to be attentive on how the pandemic is influencing one's class, race and gender now and in a post-COVID scenario. The restrictions of movement imposed by the government mandated lockdown, allied to this historic scenario can, for instance, intensify cases of gender violence and racial profiling<sup>5</sup>, as urban spaces are currently emptied and making people and groups more visible. Restriction of movement imposed by the lockdowns around Europe and the UK have negative effects not only on the economy and access to services, but also in any progress achieved by so many groups working towards social equity. The pandemic's effect on minority groups are potentializing existing historic and social vulnerabilities in such groups. Even the economic impacts have a gendered and racialised side, as current studies show how women and ethnic minorities are experiencing meaningful changes to work access, maintenance and development<sup>6</sup>. Change of hours, furlough unfair adjustments, call

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<sup>4</sup> <https://www.bbc.co.uk/news/av/world-53014211/coronavirus-domestic-violence-increases-globally-during-lockdown>

<sup>5</sup> Disability and the historical issue of accessibility and barriers to broader inclusion are worth mentioning and is a topic rich with analysis but will not be developed in this paper. It is an axis of discussion considered and analysed by TInnGO in other fronts and instances.

<sup>6</sup> [https://www.huffingtonpost.co.uk/entry/bame-women-work-pay-coronavirus-disproportionately-affected\\_uk\\_5f0eed9bc5b648c301f1fd31?guccounter=1&guce\\_referrer=aHR0cHM6Ly90LmNvL1B3cJ2VzY4U2Y\\_Y](https://www.huffingtonpost.co.uk/entry/bame-women-work-pay-coronavirus-disproportionately-affected_uk_5f0eed9bc5b648c301f1fd31?guccounter=1&guce_referrer=aHR0cHM6Ly90LmNvL1B3cJ2VzY4U2Y_Y)

for training and change of careers are some situations these groups are facing against more privileged work situations from less economically vulnerable groups. With restricted movement and safe access to transport, minorities are affected by such factors with little opportunities to mitigate their consequences or change careers. Aggravating situations in a pandemic such as unequal gender distribution in family homes and multi-generation households are some of the many topics appearing in research and reports. With Covid-19 magnifying existing social inequalities, ethical urban planning should not restore normality, but avoid it altogether, as our pre-pandemic normal was never equal and fair to a big portion of our population.

### 3. Power

An intersectional framework is often used to deconstruct power relations in societies. Race-gender-class has been traditionally in the centre of intersectional approach with all of them affecting access to services, including transport and altering mobility. Imbalance of power is the direct result of wealth gender imbalance. Crenshaw (1989) posits that factors such as race, ethnicity or sexual orientation can perpetuate inequalities. Such interactive and multiplicative effects of these intersecting oppressions can be illustrated in the example of the gender pay gap where, overall, women earn less than men (Eurostat, 2020). However, non-white women earn less than white females. Divisions within one gender group are crucial for intersectional analysis as gender cannot be considered as a monolithic, homogenous entity.

Power has been understood to be the practice when an individual or group controls the actions and/or options of others. This can be through either the overt means of physical force or using more covert methods that limit a set of options being perceived (Rowlands, 1998). Covert methods of power come down to the distribution of resources and decision-making agenda. Therefore, social power is directly connected to income and assets. Income cannot be discussed in separation from ethics, social justice and economic dimensions of patriarchy (Hartmann, 1976). Income is crucial to building wealth. Wealth consists of income, savings, and assets, such as property and non-liquid assets, as well as debt owed. Wealth is used as a both a safety net and a generator of more wealth. Wealth inequities exist along the intersections of race, gender and class. In the Global North financial and economic abuse (Fawole, 2008) is prevalent being reciprocally linked to domestic violence (Renzetti, 2009) that is often being extended into psychological or emotional violence. All of the forms of violence against women including sexual violence are

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preying on sex dominance and can restrict victim's mobility and exclude them from public spaces (Sheller, 2018).

Globally, women are deprived of income by fewer job opportunities available to them, poorer access to education and persistent pay gap (Esteban Ortiz-Ospina, 2018). Moreover, one of the most prevalent factors contributing to economic disadvantage is women's unpaid household labour. Household labour and caring responsibilities are still considered as mainly female domains (Bianchi et al., 2000; Gouthro, 2002; Mahalingam et al. 2006; K. Marshall, 2006; Wharton, 2005). Women around the globe are expected to take the burden related to family maintenance. Physical, mental and emotional labour (Bianchi et al 2000) of women remains invisible to conventional economies. However, if enumerated at the minimum wage rate would be worth \$10.9 trillion a year (Oxfam, 2019). Despite unquestionable economic worth, women's unpaid work is not a part of G.D.P. calculations and rarely factors into other measures of economic growth.

Household and caring work is not valued as real work: "Unpaid productive work, including that done in the home and volunteer work, tends to be invisible" (Reskin, 2001, p. 3261) and is seen as work that women provide because ethically they cannot but care (Skeggs, 2014). Moreover, women are being punished by the economy for dropping out of the job market to attend to their families. Prioritising family results in women staying in the cycle of part time, low paid, precarious jobs (Wrohlich, 2004; EC, 2014). Precarity<sup>7</sup> of employment makes women vulnerable to any economic fallout or recession and more likely to be at the risk of poverty later in life due to low pension and lack of savings (Haskova, 2017). Recent research in Spain with native and migrant part time female workers found greater precarity amongst migrant workers (Munoz Comet & Steinmetz, 2020). In conclusion, disparities in power and wealth accumulation are the result of cultural and historic barriers that are still present in modern societies. Power dynamics in the family pertains to structural power in society which in turn limits opportunities for women.

## 4 Intersectionality

### 4.1 Defining Intersectional Theory

The origins of Intersectionality, rooted in black feminism and post-colonial theory were conceived as a response to addressing the "whiteness" of feminist theory and challenged discrimination, the exclusion of race. Thus, realizing the opportunity for a deeper analysis, broadening the scope of feminist theory by addressing non

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<sup>7</sup> Precarious employment is most common among young people, particularly those who left school early. Almost half of women and 39 % of men aged 20-24 work in precarious jobs. Almost every second (45 %) woman with low qualifications works in precarious employment compared to 26 % of men. Nearly one in three non-EU born women (35 %) and one in four men (24 %) work in precarious jobs. Women who live in their country of birth (native born) work in precarious employment more often than any other group of men, including non-EU born (25 % native born women compared with 14 % of native-born men, 16 % of EU born men or 24 % of non-EU born men). Migrant women may be disadvantaged due to their migrant background and they also may be subjected to gender discrimination<sup>1</sup> (EIGE, 2017:23)

privileged women (Crenshaw, 1989). Intersectionality posits that lives cannot be reduced to single characteristics and experiences cannot be understood accurately when one single factor is prioritised (Hankivsky et al., 2014). Intersectionality describes micro level processes; how individuals and groups occupy a position using interlocking structures of oppression (Dressel et al., 1997). The interconnection of these interlocking structures creates Intersectional disadvantage, defined here as the interconnected nature of categorisations including (but not limited to) gender, race, class, disability, faith and age and how different power structures interact, creating an interdependent system of discrimination and disadvantage.

## **4.2 Intersectional theory and transport inequality**

In earlier sections we discussed ethical issues of power imbalances that have a negative impact on mobility justice, here we outline how the theory of Intersectionality can be used to explore the relationship of the overlapping nature of identity characteristics to mobility. We are cognisant of the variance in identity characteristics that could be discussed here however we have focussed attention on the intersections of gender race and class in this paper. None the less our discussions are still of equal relevance to other intersectional characteristics such as disability, faith and sexuality. In the field of Smart Mobility, we argue an exclusive focus on gender is too simplistic, using an intersectional approach means that discrimination grounds such as gender, age and race cannot be analysed alone but must be approached as closely interwoven and mutually affecting (Crenshaw, 1989). Intersectionality aims to advance the understanding of gender and transport through the inclusion of more characteristics to show that transport needs depend on age, race, income and location. Intersectionality can therefore identify the interconnected nature of multiple factors that lead to diversities within groups i.e. women - and their travel behaviours, choice of transport mode and the barriers faced in access to transport.

Mobility Justice (Sheller, 2018), Transport Justice (Martens, 2016) and Transport Poverty (Lucas et al, 2016) are all terms that serve to understand the disparities in mobility and accessibility for citizens from disadvantaged backgrounds.

Transport can be either an unavoidable barrier to escaping social exclusion or a bridge which enables social mobility, literally and metaphorically. Transport related social exclusion is a pervasive issue that has a significant impact for certain groups in society, i.e. disabled, elderly, low-income families, and women. (Lucas, 2012).

Extensive literature has investigated the differential impacts of poor accessibility experienced by disadvantaged groups in society (SEU, 2003; Titheridge, et al., 2014) and identified the socio demographic effect related to personal characteristics. As illustrated by Jones & Lucas (2012), the micro individual oppressions of social groups vulnerable to accessibility such as those without cars, disabled and older groups, interact with those issues on a macro level, inadequate transport and other local

services and those at the meso level, stemming from (inter)national trends (restructuring of global markets, laws, cultural influences). We are also supportive of the view that social exclusion is a constraints-based process which causes individuals or groups to be unable to participate in the normal activities of the society in which they are resident and has important spatial manifestations (Preston & Rajé, 2007). All transport modes other than walking typically incur cost, with faster modes such as cars or trains incurring higher cost than slower forms such as cycling or buses but access to faster modes of transport offers access to wider opportunities within a given time. In areas where some of the more socially excluded, or those at risk of becoming socially excluded or underperforming economically or in terms of health outcomes (as compared to their peers residing in more urban areas) live such as rural settings, the problem becomes even more acute as the number of transport options declines. Even walking is out of the question due to distance, time, safety or the health of the individual.

Transport systems should be designed to alleviate poverty and enable all citizens to access the places they need to. Titheridge et al (2014) recommend that in order to achieve such aspirations equity criteria need to be developed and implemented to ensure that those marginalised in society have their needs met. Yet as previously highlighted the needs of different groups in society vary enormously within those social groupings. The incorporation of an intersectional consideration could improve the understanding of differing needs and enable more targeted approaches to improving mobility and accessibility.

## 5. Policy

### 5.1 Transport Policy

Having established that Intersectionality is a tool that can be used to understand the axis of oppression in relation to mobility it therefore seems opportune to apply the theory to transport policy. In this chapter we outline the need for building on the work of academics (Levin & Faith-Ell, 2019; Polk, 2008; Roemer Christiansen et al, 2007; Brengaard, et al.) in incorporating gender mainstreaming into European transport policy. We suggest how, particularly in the face of a potential (in)equality pandemic, adopting an intersectional or diversity mainstreaming approach transport policy can enable gender smart mobility to become a smarter form of mobility justice.

We are mindful of the substantive progress made by scholars in the field to address gender equality in transport policy (Hamilton et al., 2005; Polk, 2008) and of the adoption of gender mainstreaming into policy at an international level however we argue that adopting a policy approach with a singular focus i.e., issues of gender, leads to a false classification of people that does not accurately reflect lived experience. Similarly using an additive approach (Hancock, 2007; Hankivsky, 2007)

where different characteristics are added to another does not address the interplay between characteristics such as inequality and discrimination. We then suggest how, particularly in the face of a potential (in)equality pandemic, adopting an intersectional or diversity mainstreaming approach transport policy can become a smarter form of mobility justice and conclude with best practice suggestions, drawing on existing intersectional policy analysis frameworks.

## 5.2 Gender Mainstreaming

Since the concept of Gender Mainstreaming was defined in 1997 by the ECOSOC (UNWomen, 2020) as a strategy for making women's as well as men's concerns an integral dimension at all levels of policy, Gender Mainstreaming has been adopted in transport policy at the international and European level.. Gender mainstreaming is currently defined by the European Institute for Gender Equality as;

*"A strategy towards realising gender equality. It involves the integration of a gender perspective into the preparation, design, implementation, monitoring and evaluation of policies, regulatory measures and spending programmes, with a view to promoting equality between women and men, and combating discrimination" (EIGE, 2020)*

Whilst Gender Mainstreaming has been embedded at the European level for some time now it has not been widely adopted in this format at an individual country level. Good examples are to be found in Sweden and the Nordic regions. Here there is a long history of incorporating gender mainstreaming and gender equality goals into public policy and gender equality is an objective in all policies (Polk, 2008) Similarly, in Austria Gender Mainstreaming has been embedded in planning and policy design (Telepak: SUMP Network-EU Vienna, 2014). A progressive approach to forcing planning into considering different perspectives has meant that city transport networks and urban infrastructures are now no longer solely planned for the male commuter but now acknowledge the shorter trips, more frequently made by women accounting for unpaid caregiving duties such as shopping or school drop off, and acknowledging the difference in transport modes for women, which more frequently involve public transport or walking.

The United Kingdom have taken a different approach. Gender and equality characteristics such as (but not limited to) race, disability, age, religion are protected characteristics enshrined in the Equality Act 2010. A separate independent body, The Equality & Human Rights Commission promotes and upholds the legislation across the UK. The Government Equalities Office is the lead contributor to the Equality Act and contributes to separate policies across all government departments, including the Department for Transport. All public sector departments are bound by the public sector equality duty. Broadly, the purpose of the equality duty is to integrate consideration of equality and good relations into the day-to-day

business of public authorities. Compliance with the general equality duty is a legal obligation.

The decision to create separate legislation as opposed to the Swedish or Austrian model has led to a fragmented approach in the UK particularly to data collection and there is no departmental standardised approach to policy equality goals or central monitoring systems.

Despite the adoption of Gender Mainstreaming at the European level it has not been widely viewed as the panacea of gender equality. Using gender as the primary category for equality is problematic, critics have highlighted that it fails to recognise the diversity among men and women. Hankivsky (p 218, 2011) argues that this perpetuates the additive approach where differences are added to the variable of gender which subsequently reinforces the privilege of certain groups over others. In Austria the use of the word gender in the context of urban planning and policy has also been viewed as a means to reinforce stereotypes when considering how to characterise the difference between how men and women use space, which has led to opting to use the label *Fair Shared City* (Irschick & Kail, 2013). Gender mainstreaming has also struggled to become adopted in developing countries where gender blind organisational leadership has meant a weak commitment to gender equality.

In conclusion Gender Mainstreaming in transport policy has significantly advanced gender parity. However, the concept is largely Eurocentric and the non-standardised approach to uptake in individual countries has led to a fragmented response particularly to tackling gender, diversity and racial inequality and therefore it is difficult to assess what progress had been made.

### 5.3 Gender and Smart Mobility

There is a wide body of evidence that shows patterns of travel of men and women differ. As highlighted in earlier sections, division of household and labour market roles mean that women are more likely than men to be employed in part time low paid roles. Mobility is still heavily influenced by gendered roles in the labour market and the relationship between gender, diversity and power hierarchy.

Mobility needs are evolving, changing travel habits demand for services to increase speed convenience and Smart Mobility is seen as a means of delivering key benefits such as a reduction pollution, traffic congestion, noise pollution and transfer costs, whilst at the same time increasing transport safety and improving transfer speed. Smart Mobility is described as a transition to a future where mobility becomes a personalised, on demand service with greater consumer choice and new models of ownership (Docherty, et al., 2018). Smart Mobility is a paradigm shift away from mono-modal transport systems to more flexible and multi-modal transport systems promising high degrees of flexibility and convenience and enabling the achievement

of a more sustainable future. Its delivery is connected to the use of appropriate technologies, the consistent and systematic use of ICT and an understanding and modelling of all citizen's needs. The roots of Smart Mobility lie in STEM subjects such as computing, engineering, manufacturing and planning where gender imbalances in take up of career choices by women persist (Harrison, 2012; Hutchinson & Bentley, 2011; Pirra et al, 2020). It is worrying to note that a gender gap has already been recognised in the Intelligent Mobility sector in the UK and in the smart mobility sector in Nordic regions (Singh, 2019). If left unchecked, this may not only limit the opportunities for women's employment and education in this new field but may also impact the type and inclusivity of future development in Smart Mobility innovations. Research into the need to incorporate a gender perspective into Smart Mobility is emerging (Uteng, et al. 2020), but predominantly demographic studies of smart mobility systems reveal that most of the users are male and have higher incomes (Singh, 2019). Many of these new models of transport, such bike sharing and e-scooters are not equipped for women or for those with caring commitments, who may require child seats and storage for shopping, automatically excluding these groups. Equally these modes rely heavily on the use of technology, using apps to access services which requires a level of digital literacy and ownership of the required technology. Such systems may be beyond the reach of those poorest in our society. In summary whilst Smart Mobility is advancing choice and offering more sustainable modes of transport it is not clear whether these advancements will be advantageous to all groups in society and highlights a need for a deeper understanding of users differing needs and abilities.

## 5.4 Race

In our literature review for this paper it became clear that current research of a truly intersectional nature in transportation studies is very limited. We also identified gaps in the literature that address issues of race and transport.

Sheller (2018, p76) writes that patterns of transportation use and access have been central to the making of American patterns of racial segregation. There is also an articulation to segregation in urban mobility with migration bringing immigrant populations into cities. Often these groups of migrants who are working in low paid unskilled employment live in deprived neighbourhoods that lack access to good public transport links. These inequalities have implications for health, pollution and road safety and also opportunities for social mobility.

As an example, recent intersectional research into the use of active transport among American low income youth and youth of colour (Roberts, et al., 2019) highlights that not only are there benefits of using active and sustainable modes of transport for young people but that equally there are converging social and environmental variables that impact on their mobility practices. Racial profiling of African American

pedestrians and a disproportionate risk of pedestrian injury among youth of colour puts them at greater risk just from the colour of their skin. Yet, youth from such families are more likely to walk or cycle compared to those from higher income households or cultural backgrounds.

With racial profiling still being a reality, authorities' push for alternative ways of transportation will not reach all populations, due to the already discussed unequal characteristics of public space, transport, and opportunities. A further example that can be highlighted is the historic male-whiteness<sup>8</sup> of cycling, extending beyond the competitive sport and unto commuting, creating barriers for the BAME population. Such barriers can be thought not only in economic terms, but also to invite diversity into the cycling culture. Aldred and Jungnickel's (2014) paper on cycling culture in the UK shows how cultural backgrounds need to be taken seriously and applied to policies and infrastructure planning. As with the case of cycling, due to its white and middle-class backgrounds, to properly reach people, needs to be dissociated with such ideas and be incentivised as a proper element of people's culture. This is already the case with middle-class families where boys grow up riding bikes and this becomes naturally embedded in their ethos, something less privileged families with traditional gender roles will lack. By dissociating cycling from ideas of whiteness, youth, and maleness, it can have a potential role in urban integration, racial equality, and diversity. Not only cycling can be a great ally for racial equality<sup>9</sup>, but it can provide access to populations historically excluded from political and cultural centres for change and dialogue in most cities (p. 85). In turn, a more diverse and popular cycling culture generates a kind of visibility beneficial to cycling itself, generating respect among drivers and anyone sharing roads and lanes, creating a more inviting, healthier, and safer city for cyclists, pedestrians and alike.

## 6. Intersectionality as a tool for smart mobility policy makers

In view of the advancements made in gender equality and the potential of Smart Mobility systems to offer more sustainable forms and less vehicle centric forms of transport, we now discuss how Intersectionality could enable Smart Mobility to become more socially just. We review current frameworks for intersectionality-based policy analysis and discuss the potential for operationalization to transport policy. Intersectionality based policy analysis is a relatively new line of inquiry but has been well researched in the health literature (Viruell-Fuentes, et al,2012;

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[https://researchonline.lshtm.ac.uk/id/eprint/2852/1/Cycling\\_in\\_London\\_author\\_copy.pdf](https://researchonline.lshtm.ac.uk/id/eprint/2852/1/Cycling_in_London_author_copy.pdf)

<sup>9</sup> <https://www.weforum.org/agenda/2020/07/how-cycling-could-drive-racial-equality/>

Hankivsky, 2012; Bowleg, 2012). It offers an approach that is not linear in its application and therefore offers greater flexibility in consideration of the context of place and diversity (Hancock, 2007). Hancock also draws attention to the relationship between identity categories and recommends this should be considered an open empirical question in intersectionality-informed research and practice, and not assume that any particular category or intersection deserves ‘a priori’ status which also might address the issue of how to prioritise which intersections to analyse.

Various Intersectional policy frameworks have been developed (Hankivsky et.al, 2014; Davaki et al., 2013) Intended for health, gender and disability policy which could be developed as an effective tool for smart mobility policy makers if taken in conjunction with reports of transport inequality (NatCen, 2019; Crisp, et al,2018; Lucas, et al., 2018).

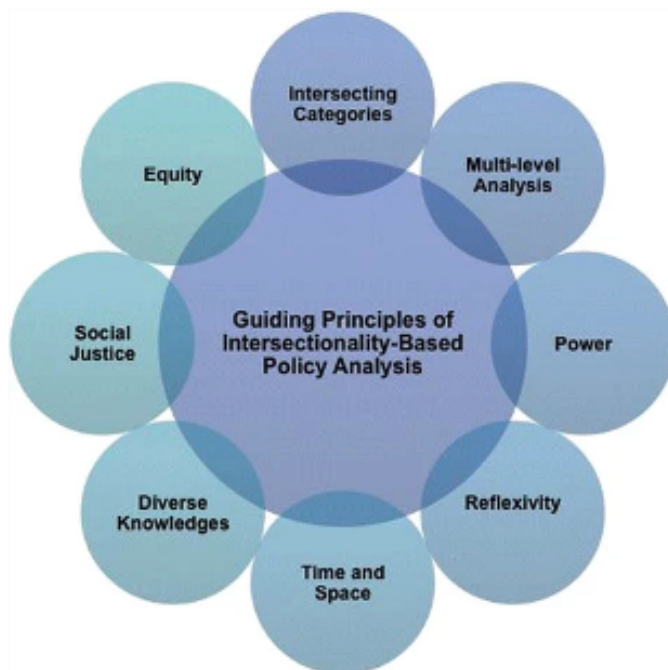


Figure 1. Image taken from Hankivsky et al. (2014) to illustrate the guiding principles of intersectionality based policy analysis

Hankivsky et al’s model comprises two core components: a set of guiding principles (see Figure 1) and a list of 12 overarching questions to help develop the analysis; both sections are designed to be used in conjunction with each other. The questions are split into descriptive and transformative groups, the descriptive questions are designed to generate critical background information about policy problems in their full context.

*“What is the policy ‘problem under consideration?’”*

*“How have representations of the problem come about?”*

*“What are the current responses to the problem?”*

*Examples of descriptive questions from the IBPA framework*

The second, *transformative* questions, [not all need to be answered] are intended to “assist with the identification of alternative policy responses and solutions specifically aimed at social and structural change that reduce inequities and promote social justice. These questions are designed to prompt users to consider actions that will ensure meaningful uptake of equity-focused policy solutions as well as the measurement of the impacts and outcomes of proposed policy responses.” (Hankivsky et al., 2014)

*“What inequities actually exist in relation to the problem?”*

*“How will proposed policy responses reduce inequalities?”*

*Examples of transformative questions from the IBPA framework*

When comparing the Intersectional framework questions to transport inequality reports it is clear there are significant similarities, each relate to Power, Social Justice and Equity together with intersecting characteristics such as (but not limited to) gender, race and class.

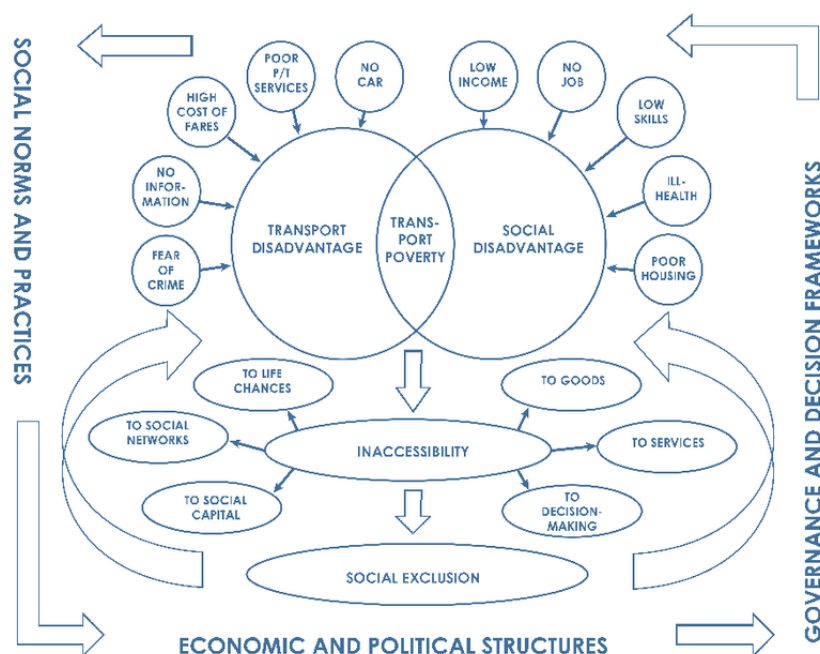


Figure 2. Image taken from Lucas (2012) to show the relationship between transport disadvantage and social exclusion

We are of the opinion that when developing policies for smart mobility both topics of transport inequality and intersectionality should be at the fore front of the design process in order to develop more inclusive diversity mainstreaming policies.

In this paper we have discussed how Smart Mobility could be a more intersectional form of mobility justice. We have examined the current position of transport policy in incorporating Gender Mainstreaming, discussed its relative successes and taken a critical view of why this approach has not been adopted universally and suggested an intersectional approach to policy analysis utilising existing frameworks which could be adapted to transport policy.

Tackling inclusivity in access to spaces for societies that are rich in diversity cannot be achieved using a one size fits all approach to gender difference. Significant advances have been made over the last 20 years in the adoption of Gender Mainstreaming into transport policy, however the progress of women in the transport sector both as employees and as transport users has not kept up with this progress. Even when gender equality is enshrined in law this does not appear to be a tangible reality for many women. EU policy has adopted gender mainstreaming as a policy objective with Intersectionality as a horizontal principle, however there is no particular reference to how this can be achieved. At the nexus of a new post COVID era there is now an opportunity to build on this progress which provides a platform to move beyond the binary and draw upon the values that underpin an equitable society, acknowledging greater diversity and variance in lived experience. It has to be noted that there are limitations to adopting this approach. Intersectionality is complicated and requires expertise, further research should be undertaken to develop tools that can measure the simultaneous effects of particular intersections and equity in transport. We recommend that the process starts with the collection of disaggregated data, the quality of data such as being collected in the TinnGo project will provide the foundations for thorough intersectional analysis. Novel forms of data, using innovative methods of data collection and grater inclusion of qualitative inquiry would also better reflect the lived experience of citizens. It is important also to note that Intersectionality analysis focuses on the axes of oppression and power. Challenging established structures of power requires policy makers to develop new ways of thinking and there may be resistance to change. However intersectional analysis offers an opportunity for debate about how differences relating to (but not limited to) age, gender, race, income and ability can influence how mobility is experienced and factors such as safety and risk for women and diverse groups can be better understood.

## 7. COVID-19

A Virus does not discriminate. Society does.

When we approached writing this paper the pandemic was starting to unfold and we could not foresee the impact this would have on people's mobility. It is now clear the COVID-19 pandemic has created immense social, economic, and political disruption around the world. More importantly, this global pandemic has exposed deeply rooted social inequalities (Alon et al, 2020). Governments around the globe have been urged to recognise the unequal impact the pandemic is having on different communities, particularly where economic inequalities intersect with racial discrimination (UNOHCA,2020). Emerging evidence shows that the COVID-19 pandemic is gendered in its consequences and experiences (Al-Ali, 2020). Whilst mortality has been higher amongst men (Jin Jian-Min, et al. 2020), early indications show the economic fallout is having a greater impact for women. An immediate consequence of the pandemic on women has been the loss of jobs. Women's jobs are 1.8 times more vulnerable to this crisis than men's. Women make up 39 percent of global employment but account for 54 percent of overall job losses. Secondly, men and women tend to cluster in different occupations. Women being employed part time on temporary contracts are more likely to lose their jobs in the face of economic crisis. Thirdly, with the school closures demand for the unpaid care work has increased substantially giving women even less time for paid work or leisure (Oxfam, 2020) and causing them to drop out from the job market. However, gender intersects with other factors that can further deepen inequalities. In the Global South, safety and reproductive health has been put at risk due to service closure. Restrictions on mobility will also prevent women from accessing these services. The closure of borders and travel restrictions specifically affects migrant and refugee women being stranded on the borders and risking personal safety. Numbers estimated by the United Nations show that the crisis will see 7 million unplanned pregnancies and 31 million gender-based violence cases; total 13 million child marriages taking place that otherwise would not have occurred (UN Report, 2020).

Public Transport worldwide – being predominantly used by women – was immediately impacted when cities imposed lockdown restrictions. Little research has been done on specific risks on transport, but we can apply what we know so far about general virus transmission. Inability to maintain social distancing, small spaces with high congestion and poorly ventilated areas are the main reason why trains, airplanes and buses were ranked as high risk exposure to the virus. Consequently, bus drivers – who have been among workers having frequent and close interaction with many people over the course of a shift – are running a higher risk of infection (Semple &Cherrie, 2020). Recent data shows that Male bus and coach drivers were found to have a rate of 26.4 deaths per 100,000 compared to sales and retail assistants at a rate of 19.8.<sup>10</sup>

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<sup>10</sup> <https://www.bbc.co.uk/news/uk-england-london-52752022>

Despite disruption in public transport many women had to use public transportation to get to work or to fulfil their caring responsibilities. This puts women at greater risk of coming into contact with the virus. In countries where restrictions on movement have tightened, public transport has been reduced or even shut down. New research on mobility from Denmark emerged concluding that the impact of the pandemic on mobility has been so far the greatest among women, especially women with a lower level of education (Van del Kloof & Kensmil, 2020). Similarly, women from lower socio-economic groups are the largest public transport users as they have less access to private vehicles (European Commission, 2014). Moreover, concentration of women in health care<sup>11</sup> and caring jobs increased their risk of infection. Many of these jobs are low-paid, precarious and deemed as unskilled. In conclusion, it is important to acknowledge overlapping factors impacting women's livelihood during this pandemic in order to recognise the disproportionate impact. Researchers have already sparked a discussion around intersections between Covid-19 and gendered burdens, particularly in frontline work, unpaid care work and community activities (McLaren et al, 2020). However, being at the thick of these unprecedented times further research is required to understand the gendered, racial and socio-economic impact.

Lockdown and restrictions imposed on services verified the essentiality of public services. While most non-essential services were closed, food production sites, transport services and of course health services had to remain open. Recent data shows occupational risk of exposure to COVID-19 associated with race and ethnicity (Hawkins, 2020). Much of the low paid work in these sectors is carried out by migrant workforces and the BAME community. Black and Asian workers were most likely to be employed in occupations in areas where local lockdowns in the UK have been introduced.

Localised lockdowns are now appearing in areas characterised with socio-economic deprivation (Bibby, 2020). For example, Leicester, a city in the UK was the first to have lockdown restrictions re-imposed due to the rising number of reported virus cases in mid-June 2020. Leicester has a rich and diverse multicultural population and could serve as a lesson on how a combination of economic, racial and social inequalities can lead to health inequalities (Nazareth, 2020). Census results and estimates of populations from local hospital in Leicester showed that 72.5% of the population of the affected wards were from Black, Asian, and Minority Ethnic backgrounds, mostly of South Asian ethnicity, who are disproportionately affected by adverse outcomes of COVID-19 (Pan, et al.,2020).

Spikes in cases have been seen in working class neighbourhoods where people were unable to maintain social distancing due to employment and housing conditions. Many local outbreaks were concentrated around factories, farms or food production

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<sup>11</sup> Women make up 70 percent of health and social workers globally - Gender equity in the health workforce: Analysis of 104 countries, March 2019; accessed July 2020:  
<https://apps.who.int/iris/bitstream/handle/10665/311314/WHO-HIS-HWF-Gender-WP1-2019.1-eng.pdf>

facilities in which migrant workers were put at risk of high exposure to the virus<sup>12</sup>. There are examples of agricultural sites and farms with hundreds of physical workers going under local lockdown to prevent a further outbreak in the wider community.<sup>13</sup> This phenomenon of localised outbreaks in socio-economically deprived areas can be observed in other European countries. In Germany or in Portugal for example slaughterhouses and meat packing plants have been a major risk for COVID-19 infection throughout the pandemic (Middleton et al., 2020).. Many industrial or agricultural sites employ migrant workers on insecure low paid contracts with no guarantee of paid sick leave that discourages them from disclosing symptoms for fear of penalty or losing their job. Additionally, living in overcrowded accommodation and reliance on buses or shared transport accelerated the spread of the virus, one health authority has targeted car sharing and a lack of social distancing at bus stops as a route of transmission (Northamptonshire HCP, 2020).

Areas specifically affected by the virus have high concentrations of poverty and are inhabited by people most likely experiencing transport poverty (Transport Poverty, CIVITAS, 2016). In these neighbourhoods many residents have limited access to private vehicles and rely on public transport. This creates more challenges and makes life more difficult for people who are trying to avoid public transport yet need to get to work, access goods and services. Neighbourhoods around the globe with high rates of infections were densely populated with working class and immigrant families illustrating links between economic, racial, social and health inequalities (Rushina et al, 2020; Pirtle 2020). It is important to realise that those disparities were not created by the health crisis. Inequalities were only amplified and exposed urging local authorities to impose local lockdowns.

Lewis (2020) describes the pandemic as a disaster for feminism, with quarantine exacerbating financial difficulties, increasing the burden of unpaid labour, stress, increased alcohol consumption and isolation, leading to an increase in cases of domestic violence. In two parent households, where women work fewer hours outside the home, they are perceived to be more flexible in terms of performing additional caring needs for those requiring support and home schooling. Although male mortality is higher, women are at the frontline in battle against COVID-19 in both private and professional settings. Women are overcoming obstacles to treat and care for those infected with the virus, working hard to contain the virus, and helping their families and communities protect themselves. Moreover, women are more likely to work in low-paid precarious jobs leaving them at the risk of unemployment. Therefore, governments around the globe have been urged to apply intersectional and gender specific action to combat the economic crisis that will affect women from lower socio-economic background at the disproportionate rate.<sup>14</sup>

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<sup>12</sup> <https://www.expressandstar.com/news/health/coronavirus-covid19/2020/07/22/west-bromwich-factory-at-centre-of-coronavirus-outbreak-in-sandwell-closes/>

<sup>13</sup> <https://www.bbc.co.uk/news/uk-england-hereford-worcester-53381802>

<sup>14</sup> <https://www.fawcettsociety.org.uk/news/new-data-shows-coronavirus-impact-on-women-in-greater-manchester-and-west-midlands>

## 8. Conclusion

In this paper we have sought to identify ethical considerations of mobility justice that and outline a potential solution to addressing issues of mobility injustice through the operationalisation of intersectionality into transport policy. We focussed attention on the trinity of gender race and class and have highlighted gaps relating transport and race in the current literature.

Limitations of the paper are that we have taken a global north perspective to mobility justice however much of the discussion here also relates to the Global South. We have also not specifically focussed on disability within the scope of this paper.

It is becoming clear that the economic health and social impact of COVID-19 will be felt for years to come. Therefore' we argue that the impact of current restrictions on mobility should not be viewed as a temporary situation if we are to avoid setbacks to progress made in achieving a more just form of mobility. Around the globe researchers and governments are responding to the crisis to develop more sustainable transport policies, including considering more equitable active modes such as walking and cycling. Moving forward this may also present an opportunity to rethink the work environment – exploring more flexible ways of working that work for those with caring responsibilities while acknowledging the burden of unpaid work predominantly carried out by women. Transport design could see a seismic shift beyond the design of transport systems in terms of traditional 9-5 commuting journeys.

Our discussion of the operationalisation of intersectionality in policy is a timely one which now posits opportunity for change and to amplify the voices of those marginalised in our society. However, it is not enough just to hear those voices, instead this post disaster landscape built on the legacy of mobility inequalities has to become a catalyst for more equitable and sustainable smart mobility.

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**TinnGO** is funded by the European Horizon 2020 program, and its objective is to promote gender equality and diversity in the transport sector in the European Union. The project, led by **Coventry University**, began in December 2018 and will run for three years.

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