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Cyclecars, Bubble Cars, and Quadricycles: A Century of Alternative Motoring

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“Millions of Europeans want to buy affordable European cars. So we should also invest in small, affordable vehicles. This is why we will propose to work with industry on a new Small Affordable Cars initiative,” said Ursula Von Der Leyen, President of the European Commission, in her State of the Union address on 12 September 2025 (Von Der Leyen, 2025).

The Small Affordable Cars initiative has been floated by John Elkann, chairman of Stellantis, who at a recent conference “called for a new regulatory framework to facilitate the production of affordable small cars [in Europe] like Japan's Kei cars“ (Urquart, 2025). Elkann is trying to reinvigorate A-segment city cars, where “sales have plummeted from a peak of 1.6 million units in 2009 to just 393,000 in 2024” (Urquart, 2025).

These recent events are offering a new twist on a familiar story. Over the course of the history of the automobile, there have always been attempts at cheap, affordable cars. As this essay will show, this has been a cyclical occurrence: simple, cheap vehicles appear and become popular; then a more sophisticated, attractively priced light car takes over the market. Today we are seeing the familiar story going backward: as part of a push toward a more sustainable planet, a transition to sustainable mobility is underway. And small three- or four-wheeled vehicles that can be driven with a motorcycle license are leading the charge. These are called quadricycles, low-speed electric vehicles, micromobility devices, neighborhood electric vehicles, *voitures sans permis*,[1] and so on. Now major car manufacturers, some of which are already present in this category, would like to develop a light car — this time not to take over, but to complement the microcar[2] segment.
This essay will look at the subsequent generations of these microcars with an emphasis on how legislation altered the landscape.

From a Patented Motorcar to a “*Petite Voiture*”[3]

Over the course of the 19th century, there were numerous inventors, engineers, and mechanically inclined people who built experimental engine-powered vehicles using steam, electricity, gas and even petrol as a fuel source.

The practical automobile arrived with Carl Benz’s Patent-Motorwagen[4] in 1886 (Jeal, 1998: 479). Another German engineer, Gottlieb Daimler, together with Wilhelm Maybach, tested a small four-stroke petrol engine in a two-wheeler, a boat, and then a stagecoach too. Both Benz and Daimler exhibited their internal-combustion-engined vehicles at the 1889 Paris World’s Fair.

These pioneering vehicles and subsequent automobiles developed following the pioneers were really horseless carriages and as such inherited carriage dimensions: the Daimler Motorkutsche was 1.7 meters tall and 1.48 meters wide (Daimler, 2025). The Benz was a little more compact: it was just 1.45 meters tall (Benz, 2025). And just like carriages, these early motorcars also had an elevated driving position.

1 Vehicles that can be driven without valid driving permits
2 This term has been around longer than the others, so it was deemed safer to use.
3 *Petite Voiture* is French for Small Car.
4 Patented Automobile

In 1895 Léon Bollée, a French inventor, patented his Voiturette[5], which was put into production a year later. This was a three-wheeler powered by a small, 640-cc engine. This is considered to be the first proper light car, which also had another advantage: a much lower driving position (Caunter, 1970: 3).

Bollée was followed by Count Albert De Dion and his partner, Georges Boutin, with their Petite Voiture, a small three-wheeler powered by a small, high-speed engine. Subsequently De Dion also offered a quadricycle (a four-wheeled bicycle with an engine) and eventually a small car. The De Dion engine had an enormous influence on early automobile development: more than 100 companies worldwide used either an original De Dion engine as a proprietary unit or copied its basic design (Edwards, 2023).

The Origin of the Cycledar

What is a cyclecar? Cyril Francis Caunter, a former Assistant Keeper of the Road Collections at the Science Museum in the United Kingdom, who was an expert on the "light car," published several books on this category of vehicle. In his tome *The Light Car: A Technical History*, he offered the following definition: "A light three- or four-wheeled vehicle, which seated one or two people, and was constructed on light, simple and economical lines of motorcycle-type components and assemblies" (Caunter, 1970: 34). Other hallmark features included a small weight of around 350 kg or less, an air-cooled single- or two-cylinder engine with a capacity of less than 1100 cc, and belt or chain drive.

In this sense, there is a clear difference between cyclecars and "light cars," which appeared in the marketplace at about the same time and were scaled-down versions of "full-size" passenger cars with four-cylinder engines and had no motorcycle components at all (Caunter, 1970: 35).

The term "cyclecar" was coined in 1912, but there were such vehicles built prior to that, which resulted in heated debates among historians regarding which was the first. One interesting candidate is the Orient Buckboard from America, which had a flat wooden board that served as both chassis and suspension and a single-cylinder 4-hp engine. It was advertised as "The Cheapest Automobile in the World" in 1903. More than 2,500 were produced until 1907 (LaMarre, 1994: 6).

In the United Kingdom, a new Finance Act in 1909 saw the introduction of a vehicle tax levied according to the Royal Automobile Club's calculation of a car's horsepower – known as the tax horsepower. This also fostered the development of the cyclecar (Wadsworth, 2015:2).

"Around 1909–1910 many individuals, unknown to each other, and in many countries, were working towards the same end of producing a car using motorcycle and off-the-shelf technology" (Thirlby, 2025: 12). These pioneers included H.F.S. Morgan with his chain-driven three-wheeler in 1909' Robert Bourbeau in Paris, who introduced his Bedelia in 1910 with two seats arranged in tandem' and H.R. Godfrey and A. Frazer Nash, who unveiled their G.N. during the same year (Caunter, 1970: 38-39).

“The new motoring,” as contemporary journalists put it, had a market-in-waiting. In 1912 publishers of *The Motor* magazine in the United Kingdom launched *The Cyclecar* magazine at the Motor Cycle Show. More than 80,000 copies were sold of its first issue (Georgano, 1995:58). It featured an article by a statistician who provided a detailed analysis of housing and income statistics and concluded that there were over 350,000 “possible cyclecarists” in the UK alone (Chiozza Money, 1912: 11-12)!

No wonder officials at the Auto-Cycle Union, which was the major representative body for motorcyclists, decided to adopt the new machines under their wings. Their reasoning was simple: as the market was exploding, a lot of new members would mean an increased revenue in membership fees. It was at the meeting of the Auto-Cycle Union in late 1912 that the new term “cyclecar” was coined and adopted (Walkerley, 1961: 7). While the word perfectly summed up the new type of vehicle, it was also a contradiction in terms, as the “cyclecar“ was not a car, but a motorcycle derivative!

On 28 November 1912 at the behest of Auto-Cycle Union delegates from Belgium, Denmark, France, Great Britain, Italy, the Netherlands and the United States congregated in London where the Fédération Internationale des Clubs Motocyclistes (International Federation of Motorcycle Clubs) was established (FIM, 2025). It also incorporated cyclecars and for racing purposes set up two classes (Walkerley, 1961: 8):

Large Class
Maximum weight: 350 kg
Maximum engine capacity: 1,100 cc (International Class G)

Small Class
Minimum weight: 150 kg; maximum weight: 300 kg
Maximum engine capacity: 750 cc (International Class H)

By the end of 1913 there were well over 100 different makers of cyclecars in the United Kingdom and France. However the “boom was already waning by the outbreak of the war” in both countries, as “in both design and construction, many of the cyclecars were substandard and below that of the two-wheelers whose components many of them used” (Georgano, 1995: 59).

The United States of America joined the cyclecar craze for a brief period of time: “The growth of the cyclecar movement in this country has been a sudden, overnight affair,” said the first issue of *American Cyclecar* magazine in 1913 (McDermid, 1913: 10). Two years later the magazine was no longer around and interest in cyclecars disappeared — mostly due to the Ford Model T. By 1915 its price had been halved thanks to the introduction of industrial production methods (Eli, Hausman, Rhode, 2023: 20).

But that was not the end of the cyclecar in America – the Buckboard returned! The simple, body-less contraption made it into the Guinness World Record books as the least expensive production car of all time, citing a 1922 ad that listed them for U.S. $125. In the 1920s it was sold through various mail-order catalogs (Lane Motor Museum, 2025).

After the First World War, cyclecars made a brief comeback in England, but in 1922 Herbert Austin introduced the Austin 7, a small car with a price of GBP 165. With the exception of the Morgan, cyclecar companies disappeared almost overnight.

However, the immediate postwar years saw a resurrection of the cyclecar in France and a short-lived flareup of the market segment in Germany.

In France, the cyclecar received a sudden boost in July 1920, when a new finance act imposed a tax of only 100 francs per year on cyclecars and sidecars, much less than on conventional automobiles, which were taxed at 36 francs per horsepower up to 10 hp, then 44 francs per horsepower. Definitions remained unchanged: engine capacity up to 1100 cc or in case of electric motor 5 kW, total weight of 350 kg, three or four wheels, and a maximum of two seats. Sales of cyclecars went from 814 units in 1920 to 29,542 units in 1924. In 1924 the tax was increased, and in 1925 the tax advantage of cyclecars disappeared. At its peak there were close to 100 cyclecar manufacturers in France, including such brands as Amilcar, Salmson, and Darmont (Les Décoiffés, 2025) (Babethhistories, 2025)

Germany was in a dire political and economical state after World War I. In 1919 and 1920 there were restrictions on private automobile ownership (Filk, 2001: 150), which were lifted in 1921. Additionally, German hyperinflation seriously hindered new-car sales. This period ended in November 1923, when a new currency called the “Rentenmark“ was introduced, followed by the more permanent “Reichsmark” a year later.

During this period, established carmakers struggled, but a lot of small workshops emerged offering *Kleinkraftfahrzeuge* (small vehicles). With the new *Kraftfahrzeugsteuergesetz* (Motor Vehicle Tax) in 1922, Germany followed the French example. The “tax horsepower,” which has been around since the turn of the century and which was calculated based on the weight and features of the vehicle, became crucially important. Cyclecars were taxed as small motorcycles and fell into a much lower tax bracket (Kraftfahrzeugsteuergesetz, 1922).

As a logical consequence, around four-fifths of the new models coming onto the market in 1922 were small cars; there were “boatlike two-seaters, some with seats arranged one behind the other, and even cyclecars” (Flink, 2005: 155). Among these were companies that were not allowed to build airplanes anymore, among them Hans Grade, Otto Trinks, and Hermann Dorner (Ulrich, 2023: 22). While most of these cars were petrol-powered, there were electric cyclecars as well, like the Slaby-Behringer, which was exported to Japan in the early 1920s (Ulrich, 2023).

With the appearance of small light cars such as the Opel 4 PS, a.k.a. *Laubfrosch* (Tree Frog), a copy of the Citroën 5CV and the Hanomag 2/10 HP Kommissbrot in 1924, the market for cyclecars dried up (Ulrich, 2023: 23). The Hanomag was priced at RM 2300 – about half the price of its much simpler competitors — while its “2 PS“ tax horsepower put it into the same tax category (Flink, 2005: 156).

By the 1930s, the cyclecar era came to an end, though a few new players tried their luck in the segment, such as Scootacar in the United Kingdom and Framo in Germany. At the crossroads of a cyclecar and a small car were various prototypes by Josef Ganz, a German engineer and journalist whose revolutionary ideas first

manifested in the Standard Superior in 1933, a beetle-backed small car with a tubular chassis and a 400- or 500 cc air-cooled engine. This is considered to be the progenitor of the Volkswagen Beetle (Schilperoord, 2021).

Postwar Bubble Cars

The widespread financial and material poverty of the world immediately after 1945, as well as the added difficulties brought about by the instability of national and international affairs, created a general need for strict economy. In the late 1940s most British car owners were allowed just five gallons of petrol per month (Glancey, 2013: 114). In Italy the lack of raw materials led to Fiat and other automobile manufacturers publishing price lists with the small print stating "tires excluded" (Sannia, 2021: 44). The price of a new car was also a deterrent: in Italy the average income was not enough to afford a four-wheeled vehicle. In Germany the Volkswagen Beetle was priced at around DM 3790, while the average salary was just DM 1833 in 1947 (Sozialgesetzbuch, 1989).

In these circumstances, when economic conditions restricted private motoring, one answer was the scooter, like the Piaggio Vespa, which provided low-cost motoring opportunities for the masses. Also "the idea of the most economical form of car, from both the manufacturing and operating viewpoints . . . [was] revived" (Caunter, 1970: 101). Thus the cyclecar was born again, mostly in Europe, but in Japan and North America as well. The general idea was that modesty of size and performance could result in low costs. However, soon these companies realized that it was quality – and, above all, production volume – that drove costs down (Sannia, 2021).

The immediate postwar born-again cyclecars were now called microcars. Representatives of these included the Volugrafo Bimbo, a doorless, alloy-bodied open-top two-seater from Italy, powered by a single-cylinder 125-cc engine, and the three-wheeler Fend Flitzer from Germany, which was derived from a muscle-powered invalid carriage and had a 100-cc engine powering the rear wheel (Sannia, 2021, and Zeichner, 1990).

At the same time the automotive industry underwent a significant change in France. Paul-Marie Pons, an engineer at the Ministry of Industrial Production, unveiled a plan in 1945 that resulted in the complete overhaul of the sector and the disappearance of many established companies (Loubet, 1999: 425). As established car manufacturers grappled with the realities of the Pons Plan, small workshops tried to fill the vacuum. Among them were the Rovin brothers, Robert and Raoul, who produced motorcycles before the war and came up with the idea of a new internal-combustion-engined microcar in 1941–1942, when France was occupied by Germany. After the war they completed its development and unveiled the Rovin D1 in 1946, which had a simple, rounded open-top body but, unlike the majority of cyclecars, which have two-stroke engines, it featured a four-stroke, one-cylinder 260-cc engine, which was capable of a category-topping 6.6 horsepower. Subsequent models had even bigger engines. The Rovin became one of the few success stories, and it remained in production until 1958 (Zeichner, 1990: 160).

By the early 1950s, with the postwar economic boom, it seemed there was no longer a place for the crude microcar. The Volkswagen Beetle, the Citroën 2CV, and other small cars became more affordable. However it was precisely at this moment that some of the most memorable and iconic microcars — also known as bubble cars — came to the market. Renzo Rivolta, who produced Vespa-inspired scooters in the Italian city of Bresso near Milan under the brand name Iso, unveiled the Isetta (little Iso) bubble car in 1953. The egg-shaped Isetta had a hinged front for entry, the steering column and instruments swinging out with the door to facilitate easy

access to the bench seat. Power was provided by a unique Twingle motor with two pistons sharing a single combustion chamber, which drove the closely spaced twin rear wheels (Zeichner, 1990). Reaction in Italy was less than enthusiastic, so Iso licensed production rights to Spain, France, the United Kingdom, Brazil, and Germany, among others.

In Germany, new regulations were introduced in 1953 stating that motor vehicles falling into Category IV, those with an engine capacity of 250 cc, could be driven with a motorcycle license (Bundesgezetblatt, 1953: 1190). This gave a jolt to the microcar segment: BMW took out a license to build the Isetta. Messerschmitt, a former aircraft factory, teamed up with Fritz Fend, who developed the Kabinenroller (cabinscooter) for the company; while Glas, a popular builder of scooters, introduced the Goggomobil, which looked like a shrunken small car. It was popular in Europe and Australia too.

In the United Kingdom regulations allowed three-wheelers to be classified as motorcycles (Zeichen, 1990: 174), which encouraged engineers, like Lawrence Bond, to build simple three-wheeled minicars from the late 1940s. Unlike in France, Italy, and Germany, the British minicars were rarely exported and remained a local phenomenon.

By the early 1960s, the bubble-car craze came to an end. The small cars of the rising A-segment, such as the Fiat 500 and 600, the Citroën 2CV, and obviously the Volkswagen Beetle, combined with changing legislation, forced these companies out. Holdouts included the Reliant in the United Kingdom, which built quirky three-wheelers, and the Invacar, a three-wheeler invalid carriage which the British Ministry of Pensions distributed for free until the 1970s.

The Other Side of the Iron Curtain

While the bubble-car craze was most evident in Western Europe, there were remarkable examples on the other side of the Iron Curtain. Here I am just going to highlight three impactful movements:

- The Czechoslovak *lidová vozítka (*self-made vehicles) competition in 1948 and subsequent microcar rallies
- Hungarian government–supported efforts to build a production-ready microcar between 1954 and 1956
- The emergence of the Trabant in East Germany

To properly understand the circumstances, we have to go back to February 1945, when the Yalta Conference set the stage for a divided Europe. Once the Soviet Union asserted control of Central and Eastern Europe, it completely overhauled the economies of these countries. One important element was the creation of the Council for Mutual Economic Assistance (CEMA or COMECON) in 1949 with the aim “to develop the national economies of the member states through economic cooperation and the international socialist division of labor, and to raise the level of their productive forces” (Crane-Skoller, 1987). COMECON countries signed many specialization agreements, which resulted in one country focusing on a specific product, with other countries limiting or eliminating said product.

Passenger cars had a special role in these countries. While the Soviet Union itself frowned upon private car ownership until the 1960s, other COMECON countries, such as Czechoslovakia and the East German Democratic Republic, had a more relaxed approach.

Lidová Vozítka

"We produce good and cheap motorcycles. However, they do not provide protection against discomfort. We also make good cars. However, their overwhelming prices are unaffordable for most workers. Therefore, ways were sought to build something between a motorcycle and a car" (Hreblay, 2021), said the Autoklub Republiky Československé (AKRČ), the Czechoslovak automobile club, which went on to organize a competition for self-made vehicles (*lidová vozítka*) in 1948. The competition was followed by two microcar rallies in 1950–1951. Though over two dozen prototypes were completed, a clear winner did not emerge. The government monitored the situation and enabled the production of one vehicle, the OS-Kar. This was a three-wheeled vehicle designed by brothers Mojmir and František Stránský. It was produced by the Velo cooperative — later known as Velorex — from the mid-1950s until 1971, primarily to provide affordable transportation for people with disabilities.

Hungarian Microcars

With a population of around nine million people and with roughly 27,000 passenger cars in use by 1939, motoring in Hungary was really a privilege. During World War II the Hungarian vehicle fleet was largely destroyed. The situation did not improve in the second half of the 1940s and became even worse in the 1950s, when private passenger-car ownership was largely banned.

By this time Hungary was under Soviet rule. One of the aforementioned COMECON agreements effectively banned Hungarian factories from producing "passenger cars." In the mid-1950s the Hungarian government decided "microcars" are not passenger cars, so their production would not cause problems. This was the first time a state supported microcar projects directly and not via taxation or regulations.

Several projects were launched simultaneously:
- A former military complex embarked on the license production of the Messerschmitt Kabinenroller;
- Another workshop specializing in aluminum products which was supported by the Ministry of Smelting and Mechanical Engineering built two prototypes powered by 250-cc Csepel motorcycle engines;
- At least two other ministries had similar initiatives.

After the 1956 Revolution, Hungary slowly changed course, and rules on passenger-car ownership were relaxed, while microcar projects faltered.

Trabant

Today the Trabant is being recognized as a symbolic representation of a time when an Iron Curtain divided Europe, there were two German states, and the Soviet Union controlled half of Europe. There are also plenty of misconceptions surrounding the vehicles, such as: "The Trabant was a thoroughly socialist car and, like a ghost, lived on for a time in a world for which it was not meant. It was intrinsically so unlike the western concept of a 'car' that it is in fact almost impossible to assess or commemorate the Trabant simply as a car, or even in relation to the VW Beetle" (Rubin, 2009). The same author also considered the Trabant as part of an ecosystem "that sought to transform the East German urban, semiurban, and rural landscape" (Rubin, 2011).

To properly understand the Trabant we have to go back to the early 1950s. Germany was divided in 1949 to the Soviet-controlled East German Democratic Republic (GDR) and West Germany. Most of the former German automotive manufacturing plants lay in GDR territory.

As a result of the workers' uprisings in 1953, the GDR leadership decided that in order to improve morale, it should provide its citizens with welfare goods. These included such consumer goods as washing machines and refrigerators, but also a cheap, affordable car (Kowalczuk, I.S., 2023). Criteria were the same as with other light cars, such as space for two adults and two children, lightweight build, low fuel consumption, and low price; the only unusual request was to develop a plastic body because of the lack of sheetmetal in the country.

A former DKW plant in Zwickau was tasked with the development of the new small car, which was introduced as the P70 in 1955. It was one of the first serial production cars with a plastic body, in this case a material called Duroplast, which is a composite thermosetting plastic made by mixing plastic with cotton or wool fibers. Due to budgetary constraints, its mechanicals came from a prewar DKW. The P70 was a stopgap solution until the brand-new P50 arrived in 1958. This ticked all the boxes and it was fairly modern for its time – front-wheel drive, modern, steel monocoque frame, and the eye-catching body made from Duroplast. Its 500-cc two-stroke engine had a maximum power of 18 horsepower. It was really a great *trabant* (companion).

While the P50 and its updated version, the P60, was on par with their Western comrades, it was the third generation, the ubiquitous P601, where problems started. By the time it was introduced in 1963, it was slightly outdated. By the time its production stopped in 1991 it was not just old, but ancient. Today there are clubs, museums, books, etc., celebrating the Trabant, but to attach additional connotations is missing the mark. If it had been up to the engineers at the Zwickau factory where the Trabant was produced, an entirely new car with a four-stroke engine and modern design would have been introduced in the early 1970s. But due to the intricate nature of COMECON economies, the original Trabant had to be kept alive with minor updates. This was also the case with Škoda, Wartburg, and Zaporozhets, to name a few other cars with a similar fate.

Kei Cars in Japan: A Government-Sanctioned Effort

“Devastatingly effective” (Wood, 1995: 102) was the way a British historian described the results of the Japanese government’s efforts to support the development of local small cars in the 1950s and 1960s.

Japan had a small automotive industry before the Second World War (FIA, 1984). After the war ended and Japan remained under the control of the GHQ (General Headquarters of the Allied Forces), both passenger-car and truck production required a license. Limitations were removed in October 1947, yet cars were still out of reach for many. Production of three-wheeler delivery vehicles were on the rise. Additionally, due to fuel shortages a slew of small electric cars appeared on the market, such as the Tama, which was produced by the Tachikawa Aircraft company starting in 1947. In 1950 the Korean War broke out, and the price of lead, a raw material for batteries, skyrocketed. At the same time gasoline, which was under strict regulations, became widely available. As a result the electric-vehicle market disappeared almost overnight (Risdon, 2022).

At the same time, Japan’s Ministry of International Trade and Industry (MITI), a government body responsible for Japanese industrial policy, was contemplating ways to “promote affordable small cars to replace three-wheelers and provide a wider access to individual automobility” (Pardi-Alochet-Jullien-Klebaner, 2024: 32). In July 1949 a separate category was introduced, called the 軽自動車 (“keijidōsha,“ light vehicle) – popularly known as *kei*. In accordance with applicable regulations, vehicles with three or four wheels, a maximum length of 2.8 meters, a maximum width of 1 meter, and powered by either a two-stroke engine not exceeding 100 cc or a four-stroke engine not exceeding 150 cc, qualified for tax incentives.

At first, *kei* cars such as the Auto-Sandal, the Suminoe Flying Feather, and the Fuji Cabin (Risdon, 2022) were similar to European bubble cars. In the early 1950s MITI officials tweaked the category definitions (Pardi-Alochet-Jullien-Klebaner, 2024: 32) to encourage companies to come up with small cars. In April 1955, the *kei* car category was upgraded again to allow a maximum engine capacity of 360 cc, maximum length of 3 meters, maximum width of 1.3 meters, and maximum height of 2 meters. Almost at the same time Suzuki, a manufacturer of textile machinery, launched its Suzulight. Historians noted that Suzuki engineers studied the German Lloyd LP300 small car (Parazitas, 2023). In any case, the Suzulight was soon followed by other *kei* cars from companies like Fuji Heavy (Subaru), Honda, Mazda, and Cony.

Widespread private vehicle ownership began to emerge in Japan in the 1960s (Robinson, 2010: 189). By the end of the decade the *kei* car segment represented 30 percent of the sales of new cars and 24 percent of the total domestic production of cars. In the 1970s the popularity of *kei* cars waned. In 1976 category regulations changed, but it did not stop the free fall.

However, this was not the end of the segment. In the 1990s, *kei* cars made a comeback. Current regulations enable a length of 3.4 meters, 1.48 meters in width, and 2 meters in height. Maximum engine capacity has been increased to 660 cc, and now there is also a power limit: 47 kW.

Market share of *kei* cars has grown from 5 percent in 1985 to 36 percent in 2022. Among other advantages, *kei* cars are playing a big part in Japan's record decarbonization track (Pardi-Alochet-Jullien-Klebaner, 2024) and are one of the best and most often quoted examples of how regulations and taxes are able to shape, encourage, and develop an automotive market, thus offering an important lesson to regulators in the European Union.

The Era of the Quadricycle

In 1958, an United Nations treaty titled "Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts, Which Can Be Fitted and/or Be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of These Prescriptions" was set up as a framework for harmonized technical regulations. This is where today's L6 and L7 categories were born, four-wheeled motor vehicles with a weight of less than 350 kg (L6) or 400 kg (L7).

In Western Europe, developments in these segments were led by France for many years, where a new highway code was introduced in 1958: vehicles could be driven without a license if their engine capacity did not exceed 50 cc, and there was a mandatory course to learn about the highway code. Their speed should not exceed 45 km/h, and the driver had to be over 14 years old (later 16 years old) (Meunier, 2021).

The French called these vehicles *voitures sans permis* (VSP), as these can often be driven without a driver's license. In the past, this policy allowed specific user groups to be drawn to the use of the VSP, such as the elderly — particularly those in rural areas — who either never obtained a driver's license or had lost it in old age. These people are then able to retain their independent mobility through the use of a VSP. Also 16-year olds favored these vehicles because they allowed for mobility before the legal car driving age (Low Carbon, 2018: 6).

The first such vehicles emerged in France in the early 1970s. By the 1980s a whole industry sprang up, represented by such companies as Aixam, Bellier, Erad, and Ligier. Naturally these companies tried to circumvent regulations, which resulted, among other things, in the appearance of larger diesel engines.

The 1980s saw proliferation of these quadricycles in Italy, Switzerland, and Germany. In addition to petrol and diesel engines, this was the time when electric microcars reappeared.

The 1990s saw the United States of America joining the fray: golf carts which have been used off-the-road have been modified and updated in order to be used on the roads. These have been officially categorized in the late 1990s as Low-Speed Vehicles, but are also known as Neighborhood Electric Vehicles (Low-Speed Vehicles, 2006). The new vehicle class made international headlines, when DaimlerChrysler took over Global Electric Motorcars, a newly founded company specializing in NEVs. In 2011 Chrysler sold off the company.

From the 2010s more and more studies looked at the future of urban mobility and concluded that quadricycles which are part of the broader “light electric vehicle” category are playing a major role in the field: “Many users are discovering LEVs to be more reliable, sustainable and enjoyable alternatives to the car for daily commutes, or as a complement to public transport“ (Ertrac, 2023: 5)

That is why the L7 category attracted the attention of major car manufacturers: Renault first produced the Twizy between 2012–2023, which has now been replaced by the Mobilize Duo, a fully electric quadricycle with a range of 160 km. Stellantis followed suit with the Citroën Ami in 2020.

While the quadricycle market grew, the A-segment struggled. With tighter emissions and safety regulations, car manufacturers were not able to produce entry-level cars economically. Consumer interest also waned. With the new Small Affordable Cars initiative, European car manufacturers are trying to inject new life into the A-segment. If they succeed, the two categories will be able to coexist for the first time in motoring history.

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Not to drive, not to walk: Litters and sedan chairs in the Graeco-Roman world

Cornelis van Tilburg

The litter (Latin: *lectica*, Greek: φορεῖον) and the sedan chair (Latin: *sella gestatoria*) form an underrepresented group of means of transport that nevertheless played an important role in certain circles in Europe, particularly in classical antiquity. What is known about the litter and the sedan chair with seat from this period?

Litters and sedan chairs were not common means of transport. In terms of speed, they were no match for transport by animal or by cart. Their speed was equal to or even slower than that of a pedestrian; bearers not only had to carry the load, but also had to ensure that the chair did not tip over, with all the consequences that entailed. Yet, especially within cities, distances were generally short, making walking an attractive alternative. It can be said that the litter and the sedan chair were reserved for certain target groups, which will be discussed below.

The most famous scene in Latin literature in which a sedan chair appears is in the *Satyricon* by the Roman author and politician Petronius, which he wrote around the middle of the 1st century AD. The central characters are a depraved trio from the lower echelons of Roman society. The most famous passage, *Cena Trimalchionis*, describes a meal with the wealthy snob Trimalchio, a former slave, and his eccentric friends. After a bath preceding the meal, Trimalchio is placed in a litter:

> *iam Trimalchio unguento perfusus tergebatur, non linteis, sed palliis ex lana mollissima factis [...]. hinc involutus coccina gausapa lecticae impositus est praecedentibus phaleratis cursoribus quattuor et chiramaxio, in quo deliciae eius vehebantur, puer uetulus, lippus, domino Trimalchione deformior. Cum ergo auferretur, ad caput eius cum minimis symphoniacus tibiis accessit*, 'Soon Trimalchio was anointed with perfumed oil and rubbed down, not with linen but with the finest woolen cloths […] Then, wrapped in a scarlet robe, he was placed upon a litter. Four liveried lackeys and a rickshaw, in which rode his favorite – somewhat past his prime, his eyes bloodshot, even less attractive than his master Trimalchio – led the way. And while he was carried off, a minstrel strode alongside' (Petronius, *Satyricon* 28).

Was a litter common among the Romans? In this full paper, we will see that this was not the case. In the context of Trimalchio's feast, the litter emerges as an object of enormous extravagant luxury – the distance it covers is not great, but it had to give the other guests the impression that he was not walking himself, but was being carried on a litter that apparently befitted his status. Petronius does not describe what the litter looked like, but we can assume that it was constructed with precious materials such as gold, silver, expensive arts of wood and fine textiles.

When did the litter and the sedan chair originate? It is certain that the litter was already known in Ancient Egypt. Pharaohs were carried around on sedan chairs during religious processions. They had a canopy and 6-10 bearers. Rich people had a simpler chair with four bearers. Queen Hetep-Heres (2543-2510 BC), mother of the famous Egyptian pharaoh Cheops, already owned a litter. One of the grave gifts of this queen shows a litter in the form of a box, carried by two long wooden poles. Its dimensions: Height: 52 cm – Width: 52-53,5 – Length: 99 cm – Poles length: 99 cm. It is the only example of this kind of chair that survived to the present day. Ebony panels with golden hieroglyphs that give the names and

epithets of the queen adorn the back of the chair. The litter is nowadays exhibited in the National Museum in Cairo.
Unfortunately, it is unclear whether this is a litter or a sedan chair. The length of the frame suggests a litter, but the armrests suggest a sedan chair. I assume that both options were possible, but that it depended on how the frame was filled; depending on this, one could either lie down or sit up in it. Furthermore, we do not know much find material of litters from ancient times.

Another example of a litter is described in the Bible, in the Song of Songs of Solomon 3:9-10: 'King Solomon had made him a litter of the wood of Lebanon: **10** The pillars thereof he made of silver, the seat of gold, the going up of purple'. The most precious materials known at the time were used, which says something about the status of this litter. It was a covered litter, given the word "pillars".

Were the ancient Greeks familiar with the litter and the sedan chair? Plutarch, an author from the 2nd century AD, describes in his *Life of Pericles* that Pericles, the great leader of Athens during the second half of the 5th century BC, used war machines designed by Artemon, an architect and engineer. He was said to be disabled and therefore had to be carried around on a litter. Plutarch writes as follows:

> Plutarch, *Life of Pericles* 27.3 Ἔφορος δὲ καὶ μηχαναῖς χρήσασθαι τὸν Περικλέα, τὴν καινότητα θαυμάσαντα, Ἀρτέμωνος τοῦ μηχανικοῦ παρόντος, ὃν χωλὸν ὄντα καὶ φορείῳ πρὸς τὰ κατεπείγοντα τῶν ἔργων προσκομιζόμενον ὀνομασθῆναι περιφόρητον, 'Ephorus says that Pericles actually employed siege-engines, in his admiration of their novelty, and that Artemon the engineer was with him there, who, since he was lame, and so had to be brought on a stretcher to the works which demanded his instant attention, was dubbed Periphoretus (= transported around).'

However, Heraclides Ponticus, a philosopher and astronomer, according to Plutarch has a different explanation for the use of Artemon's litter.

> Plutarch, *Life of Pericles* 27.3-4 τοῦτο μὲν οὖν Ἡρακλείδης ὁ Ποντικὸς ἐλέγχει τοῖς Ἀνακρέοντος ποιήμασιν, ἐν οἷς ὁ περιφόρητος Ἀρτέμων ὀνομάζεται πολλαῖς ἔμπροσθεν ἡλικίαις τοῦ περὶ Σάμον πολέμου καὶ τῶν πραγμάτων ἐκείνων· τὸν δ' Ἀρτέμωνά φησι τρυφερόν τινα τῷ βίῳ καὶ πρὸς τοὺς φόβους μαλακὸν ὄντα καὶ καταπλῆγα τὰ πολλὰ μὲν οἴκοι καθέζεσθαι, χαλκῆν ἀσπίδα τῆς κεφαλῆς αὐτοῦ δυεῖν οἰκετῶν ὑπερεχόντων, ὥστε μηδὲν ἐμπεσεῖν τῶν ἄνωθεν, εἰ δὲ βιασθείη προελθεῖν, ἐν κλινιδίῳ κρεμαστῷ παρὰ τὴν γῆν αὐτὴν περιφερόμενον κομίζεσθαι, καὶ διὰ τοῦτο κληθῆναι περιφόρητον, 'Heracleides Ponticus, however, refutes this story out of the poems of Anacreon, in which Artemon Periphoretus is mentioned many generations before the Samian War and its events. **4** And he says that Artemon was very luxurious in his life, as well as weak and panic-stricken in the presence of his fears, and therefore for the most part sat still at home, while two servants held a bronze shield over his head to keep anything from falling down upon it. Whenever he was forced to go abroad, he had himself carried in a little hammock which was borne along just above the surface of the ground. On this account he was called Periphoretus'.

According to other theories, the Greeks first encountered the litter at the end of the 4th century. Alexander the Great met an unnamed king in India who was lying in a litter. Curtius, a Roman writer and biographer of Alexander the Great, from the first half of the 1st century AD, wrote as follows:

> Curtius, *Historia Alexandri Magni Macedonis* 8.9.24.29 *Aurea lectica margaritis circumpendentibus recubat; […] lecticam sequuntur armati corporisque custodes*, 'He reclines in a golden litter adorned with pearls hanging on every side; […] his litter is followed by armed men and by his body-guard'.

Here too, we see the litter as a symbol of ostentatiousness or royal splendour. In Greece, the litter later became popular as a symbol of luxury; the Hellenistic king Antiochus IV, king of the Seleucid Empire, wanted to impress with his wealth and in 167 BC had no fewer than 580 women brought to Delphi in richly decorated litters:

> Polybius, *Histories* 30.25.18-31.3.18 ταύταις δ' ἑξῆς ἐπόμπευον ἐν χρυσόποσι μὲν φορείοις ὀγδοήκοντα γυναῖκες, (ἐν) ἀργυρόποσι δὲ πεντακόσιαι καθήμεναι, πολυτελῶς διεσκευασμέναι, 'In the interminable procession there were to be seen eighty women sitting in gold-footed litters, and five hundred in silver-footed litters, all adorned with great costliness'.

The same king Antiochus IV used a litter for himself when he was wounded after a fall out of his wagon: *Maccabees* 2.9.8 'He […] was brought down to earth and carried in a litter, making the power of God manifest to all'. A general, Eumenes, being ill, was also carried along in a litter: ἐτύγχανεν ὁ Εὐμένης ἐκ νόσου τινὸς ἐπισφαλοῦς ἐν φορείῳ κομιζόμενος ἔξω τοῦ στρατεύματος ἐν ἡσυχίᾳ διὰ τὰς ἀγρυπνίας, 'it chanced that Eumenes, in consequence of a dangerous illness, was being carried along in a litter outside the ranks, where it was quiet and his sleep would not be broken' (Plutarch, *Life of Eumenes* 14.3). So we see here a litter as mean of transport for injured and wounded people, comparable with a bier and rolling-chair nowadays.

Finally, the litter also reached Rome. Appius Claudius Caecus, the founder of the Appian Way in 312 BC, may have been the first to use a litter: ἀλλὰ τοὺς θεράποντας ἄρασθαι κελεύσας αὑτὸν ἐκομίζετο πρὸς τὸ βουλευτήριον ἐν φορείῳ δι' ἀγορᾶς, 'he ordered his attendants to take him up and had himself carried on a litter through the forum to the senate-house' (Plutarch, *Pyrrhus* 18). Here we can assume that Appius travelled by litter because he had no other choice; he was old and blind. Other elderly and infirm people who travelled by litter included Hannibal and the Roman emperors Claudius and Septimius Severus. I will cite an incident of a magistrate in a litter:

> Gellius, *Attic Nights* 10.3.5 '*Quanta libido quantaque intemperantia sit hominum adulescentium, unum exemplum vobis ostendam. His annis paucis ex Asia missus est qui per id tempus magistratum non ceperat, homo adulescens pro legato. Is in lectica ferebatur. Ei obviam bubulcus de plebe Venusina advenit et per iocum, cum ignoraret qui ferretur, rogavit num mortuum ferrent. Ubi id audivit, lecticam iussit deponi, struppis, quibus lectica deligata erat, usque adeo verberari iussit, dum animam efflavit*', '"I will give you a single example of the lawlessness of our young men, and of their entire lack of self-control. Within the last few years a young man who had not yet held a magisterial office was sent as an envoy from Asia. He was carried in a litter. A herdsman, one of the peasants of Venusia, met him, and not knowing whom they were bearing, asked if they were carrying a corpse. Upon hearing this, the young man ordered that the litter be set down and that the peasant be beaten to death with the thongs by which it was fastened"'.

This shows that a litter was also used to transport dead bodies. The funerary nature of the litter is also evident from a passage by Seneca, in which Libo, who has already been sentenced to death, is taken to the Senate by litter:

> Seneca, *Letters* 70.10 *cum aeger a senatu in lectica relatus esset non sane frequentibus exequiis, omnes enim necessarii deseruerant impie iam non reum, sed funus*: 'When Libo had been carried away ill from the senate-house in his litter, though certainly with a very scanty train of followers,—for all his kinsfolk undutifully deserted him, when he was no longer a criminal but a corpse'.

In the 1st century BC, litters were common in Rome and beyond. Cicero, a famous politician and enemy of Caesar, mentions litters in several passages, e.g. Cicero, *For Roscius Amerinus* 134 *Mitto hasce artes vulgares, cocos, pistores, lecticarios*, 'I say nothing about such common trades, such as those of cooks, bakers, litter-bearers'; *Verrine Orations* 2.5.27 [*Verres*] *ut mos fuit Bithyniae regibus, lectica octophoro ferebatur*, '[Verres], following the custom of the old kings of Bithynia, [a former country in Asia Minor], he rode in a litter carried by eight bearers'. Cicero himself travels also in a litter: Plutarch, *Life of Cicero* 35, ἐκ τοῦ φορείου προελθὼν, 'And so at this time, when he came out of his litter' and after the assignation of Caesar, he was even killed in his litter, in 43 BC: Seneca, *Suasoria* 6.17.20 *prominenti ex lectica praebentique immotam cervicem caput praecisum est*, 'His head was chopped off as he hung out of the litter and offered his immobile neck'; Plutarch, *Life of Cicero* 48 ἐσφάγη δὲ τὸν τράχηλον ἐκ τοῦ φορείου προτείνας, 'For he stretched his neck forth from the litter and was slain'. The word *ex* (in Seneca) indicates that this is probably a covered litter and that Cicero is offering his head out of the curtains.

In order to restrict the use of litters, apparently as a sign of decadence, Julius Caesar introduced a law restricting their use to certain groups (people of high rank) and days: *Lecticarum usum […] nisi certis personis et aetatibus perque certos dies ademit*, 'He denied the use of litters […] to all except to those of a designated position and age, and on set days'. The use of litters was also forbidden to women who had no husband or children, and younger that 45 years: *Prohibitae lecticis […] utiquae nec viros nec liberos haberent et minores essent XLV* (cited by Jerome, *Chronicle* annus IV, mensis VII). It is possible that many people used litters as a result of the *Lex Julia Municipalis*, which restricted wheeled traffic during the day.

The Roman emperor Claudius famously limits municipal transport to foot or sedan or litter: *viatores ne per Italiae oppida nisi aut pedibus aut sella aut lectica transirent, monuit edicto*, 'He provided by an edict that travellers should not pass through the towns of Italy except on foot, or in a chair or litter' (Suetonius, *Claudius* 25.2), either renewing a daytime ban from Julius Caesar's reign, or extending it to other towns besides Rome. While the privileges (including the use of a litter in Rome) which he grants to his cabinet of freedmen, could no doubt cut against that: *et Harpocran, cui lectica per urbem vehendi spectaculaque publice edendi ius tribuit*, 'Also of Harpocras, a minister, to whom he granted the privilege of riding through the city in a litter' (Suetonius, *Claudius* 28). Apparently, not everyone was allowed to travel through Rome by litter, or perhaps this was a special type of litter.

After Caesar, dissolute emperors liked to be transported by litter: Caligula, *Ad primum tumultum lecticarii cum asseribus in auxilium accucurrerunt*, 'At the beginning of the disturbance his litter-bearers ran to his aid with their poles' (Suetonius, *Caligula* 58.3) and Nero, *ac deinceps eiusdem saepe lectica per publicum simul vectus est*, 'and afterwards he often rode with her through the streets in her litter' (Suetonius, *Nero* 9). At the end of the 1st century, Emperor Domitian banned the use of litters for prostitutes; apparently, they were also used for purposes other than transport. *Probrosis feminis lecticae usum ademit*, 'deprived notorious women of the use of litters' (Suetonius, *Domitianus* 8).

In addition to litters, there were also sedan chairs, *sellae gestatoriae*. According to the literature, it seems that these were mainly used by women, called *sella muliebris*: *Tunc (Otho) abditus propere muliebri sella in castra contendit ac deficientibus lecticariis cum descendisset cursumque cepisset*, 'Then emperor Otho hurriedly entering a closed sedan, such as women use, he hurried to the camp, but got out when the bearers' strength flagged' (Suetonius, *Otho* 6). Distinguished ladies were transported in a *sella*: *lectica nec te tuta pelle veloque, nec vindicabit sella saepibus clusa*, 'nor a litter screened by skin and curtain, nor will a chair shut in by barriers protect you' (Martial, *Epigrams* 11.98.11-12).

Excavations in 1874 on the Esquiline Hill in Rome yielded fragments of litters. The lower part is called a *torus*, containing a mattress, *culcita* or *pulvinus*; on top of this is a raised section, *cervical*, on which the head rests on a pillow. On the roof is a curtain rod from which the curtains hung. But our information of Roman litters from archaeology is, unfortunately, still scarce.

The sedan chair, a chair with poles carried by bearers, seems to be younger than the litter, but still in use in the 5th century AD. In Tacitus, *Histories* 3.84, Emperor Vitellius flees in a small *sella, Vitellius capta urbe […] sellula defertur*, "On the capture of the city Vitellius was carried on a chair". Although these *sellae gestatoriae* were less well known than *lecticae*, they remained in use considerably longer, even into the 20th century. Before the advent of the popemobile, popes used them to travel short distances.

Slaves and freedmen who carried the litters and sedan chairs were called *lecticarii*. They belonged to certain groups of men in the Empire like e.g. Syrians and Cappadocians and they could be representative. Good looking men: *lectica formonsis inposita calonibus*, beautiful bearers carrying a litter (Seneca, *Letters* 110.17), Cappadocians: *Cappadocum sex onus esse*, 'carried by six Cappadocians' (Martial, *Epigrams* 6.77.4), Moesians: *grege Moesorum, […] cervice locata* 'the Moesian gang to enable me to take my place safely in my hired litter' (Juvenal, *Satires* 9.143), Syrians: *vehitur cervice Syrorum*, 'to be transported on the neck of Syrians' (Juvenal, *Satires* 6.351) etc. According to an inscription, there was a chief of litter-bearers, called the *praepositus lecticariorum*, *Corpus Inscriptionum Latinarum* VI, 8874, from which can be concluded that there was a guild of *lecticarii*. Later on, there were also independent, free *lecticarii*. They could be rented, together with a litter, *conducit […] sellam*, 'to rent a chair', Juvenal, *Satires* 6.353. Who wanted to rent a litter, they could go to the *castra lecticariorum* in the Regio Transtiberina belonging to the *lecticarii publici*, who stood ready for the service of the magistrates, but probably also for general hire. So we can conclude that litters and maybe also sedan chairs were part of the general street scene in Rome.

Concluding remarks

Litters and sedan chairs had to compete with wheeled transport and transport by horse or donkey, especially for longer distances; this required porters, who were slower than the average pedestrian. It can be said that they were used by two target groups: wounded, elderly or disabled people and people who wanted to display their wealth and power. In the latter case, the litters were richly decorated with precious woods, gold and silver. In ancient Rome in particular, the use of litters led to a contemptuous attitude towards them; a man like Trimalchio used his litter so that he did not have to walk the short distance to his house. Considerably less is known about sedan chairs; they seem to have been used mainly by women. Nevertheless, these means of transport remained in use longer than litters; well into the 20th century, popes used a sedan chair to be carried around before the popemobile was introduced.

We are mainly familiar with litters and sedan chairs from literature. Very little information has come down to us from archaeology. One would expect that remains or images of litters or sedan chairs would be known from Pompeii, for example, but this is not the case.

Excessive Capitalism: The Impact of ''Hire Purchase'' Rental Services of Tricycle in Enugu Southeastern Nigeria on Peasant Drivers, 2007-2015

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Abstract

This paper analyses the socioeconomic impact of excessive capitalism in tricycle operators in Enugu, Nigeria, laying great focus on the endemic "Hire Purchase" rental of tricycles during the tenure of Governor Sullivan Chime in Enugu State, 2007-2015. This period saw an unprecedented surge in the demand for hire-purchase rental contracts by a plethora of unemployed men, ranging from ages 20-65.While this contract system provided employment opportunities for unemployed men, Hire Purchase rental organizers have taken this to be an avenue for exploiting peasant tricycle drivers. This work examines the evolution of the Hire purchase system in Enugu state, how it degenerated into an instrument of excessive capitalism and the impacts of excessive capitalism on the main actors namely the tricycle riders, commuters and the society. Excessive capitalism has become the order of the day in the tricycle business in Enugu and this has led to unpleasant circumstances such as economic inequalities facilitated by inflated rental costs, restrictive contract terms, and exorbitant interest rates by the tricycle rental organizers on the tricycle peasant drivers. These peasant drivers tend to earn peanuts, which is barely enough to cater for their many needs. For these drivers to keep body and soul together, they tend to go into more financial ditches in ways of taking loans from formal and informal credit facilities, which also affects their overall well-being. This study also highlights the impact of the exploitative attitudes of these rental organizers on the socioeconomic disposition of the tricycle operators. With the hike in fuel prices, the cost of maintenance and highly competitive structure of the transport system, the impact of excessive capitalism on mobility and the transportation sector is also highlighted in addition to immediate and long-term like reckless driving habits to meet up with daily targets, accidents, and other traffic problems. Solutions to the problems will also be highlighted in this work, to provide the government, regulatory bodies and interested stakeholders with suggestions to remedy the situation. This paper uses data from newspapers, oral interviews from tricycle riders, hire purchase organizers, passengers and other private users.

Keywords: Excessive Capitalism, Hire Purchase, Tricycle Operators, rental contracts, Peasant drivers

1. Introduction

Transportation is undoubtedly one of the most essential sectors of human activity. Without it, virtually all aspects of human life would come to a standstill. As Ajiboye et al. (2020) noted, transportation is the engine of socio-economic development in any nation. In other words, it not only facilitates daily human operations but also drives economic growth and societal advancement. Among the various modes of urban transport in Nigeria, the tricycle—colloquially known as 'Keke Napep'—has emerged as a prominent form of informal intra-city transportation and a significant source of income for many (Modibbo et al., 2017). This accounts for the remarkable increase in its usage across Enugu and other Nigerian cities in recent years.

Tricycle is predominantly known as 'Keke Napep' in Nigeria as a direct consequence of the National Poverty Eradication Programme (NAPEP) of President Olusegun Obasanjo's administration to curb poverty and empower its citizens economically (Ajiboye et al., 2020). The primary aim of the initiative was to reduce the rate of unemployment in the country, which would effectively mitigate involvement in the perpetration of crimes. In Enugu, which is the case study of this paper, the introduction and expansion of tricycle transportation, in line with NAPEP, especially during the tenures of Governor Sullivan Chime (2007-2015) became a critical component of urban mobility and a popular source of employment for thousands of residents. Although this was a feat to applaud in ensuring the alleviation of poverty, other factors exist to undermine its very essence. One of these is the unregulated Hire Purchase scheme which seems to exploit rather than to empower poor, unemployed tricycle drivers with their overly inflated interest rates. Ibrahim et al. (2018) in their work bluntly noted that the introduction of tricycles (Keke NAPEP) by both government and private individuals; that is 'hire purchase operators' was meant to empower poor, jobless and unemployed Nigerians, but unemployment and poverty still remain on the increase in the country.

Hire Purchase as a concept is very critical in grasping the very plight of many tricycle drivers in Enugu State. According to section 1(1) of the Hire Purchase Act, 1965, Hire Purchase means an agreement for the bailment of goods under which the bailee may buy the goods or under which the property in the goods will or may pass to the bailee and whereby the bailee agrees to pay to the bailor a sum or a series of sums by way of periodic payments, and the bailee's possession of the goods is conditional on the making of such payments. Afolayan and Aladesanmi (2022) examined the concept as a contract of hire with the option to purchase. In the context of tricycles, many drivers operate vehicles that they do not yet own and pay specified sums as per the agreement. Unemployed persons who do not possess the financial ability to purchase tricycles usually go to rental operators in order for them to provide the vehicle to engage in wealth creation. However, as Afolayan and Aladesanmi (2022) further described, many of these agreements contain terms—some imposed by the owners, and others by law—that are often onerous and unfavorable to the hirer, creating a cycle of debt and economic vulnerability rather than empowerment. In the course of this research in major tricycle stations in Enugu, including Abakpa, Zik-Agbani and New Heaven Axis, attention was brought to the deplorable economic disposition of peasant rental drivers, ranging between ages 20-65 (Ojukwu et al, 2020). From data collected, it was revealed that most of the people that go into this rental system as organized by hire purchase operators are family heads with children, laden with so many financial responsibilties and no other alternative source of income. It would be exigent to note also that a number of these men have little or no educational background. Lack of education deepens

inequalities and as a direct result keeps the drivers from having full comprehension of contracts that they sign, thereby making way for exploitation. Adebayo and Ipingbemi (2016) in their work had this to say:

> Findings indicated that all the respondents were male, 73.4% had no more than secondary education and 72.8% earned below N4,000 daily. Unemployment was the main reason why 55.5% went into the business, only 35.4% held valid driver's licenses and extortion from traffic agents was at a staggering 38.6%.

To strengthen the arguments, a newspaper report highlighted that many commercial drivers agree to a hire purchase without proper scrutiny of the terms of the contract, due to the pressure of looking for a source of income, thus pushing them into signing exploitative agreements and some commercial drivers were not educated enough about hire purchase agreements and therefore leave the contractual terms to breakdown and the parties involved fall apart (Punch, 2024).

This explains the overwhelming financial strain on these mostly uneducated hire purchase drivers and portrays the extent to which profit motive overrides ethical, social or humanitarian considerations, especially in relation to the economically feeble.

2. Study Area

Enugu is the capital of Enugu State, which is one of the five states in Southeastern Nigeria (John-Nsa, 2021). Enugu derived from two Igbo words, "Enu" (meaning "top" or "high") and "Ugwu" (meaning "hill"), portraying the city's location at the foot of the Udi Hills (Ogbalu, 1975). Enugu's modern development commenced in 1909, following the discovery of coal by British geologists led by Albert Ernest Kitson in the Udi Ridge. This discovery prompted the establishment of a permanent settlement in 1912, as the colonial administration launched mining operations and constructed the Enugu Colliery (Jaja,1982). The town rapidly evolved into a major coal export hub, especially after the completion of the railway linking it to Port Harcourt in 1916. This railway brought about rapid economic growth and accelerated urban development in Port Harcourt, thanks to advancement in transportation and access to the harbour (Ezeaku et al, 2023).

Enugu became even more important in 1938 when it was chosen as the administrative headquarters of the Eastern Provinces during British colonial rule. This brought a wave of professionals, traders, and civil servants to the city, gradually shaping it into a more diverse and growing urban center. Beyond its political and economic relevance, Enugu also became a key site of labor activism. In 1949, tensions reached a peak when coal miners protesting poor working conditions were met with deadly force—the colonial police opened fire at the Iva Valley, killing over 20 miners. This heartbreaking incident stirred outrage across the country and became a powerful symbol in Nigeria's fight for independence (Jaja, 1982).

After Nigeria's Independence in October, 1960, Enugu continued to serve as the administrative capital of the Eastern Region. However, its political significance rose during the Nigerian-Biafran War (1967-1970), when it was declared the administrative unit of the short-lived Republic of Biafra by Colonel Odumegwu Ojukwu. The city thrived as Biafra's headquarters until it fell to the Nigerian Federal forces between October 1967 and January 1970 (Achebe 2012; Ezeaku et al, 2023).

Following the Civil war, Enugu has undergone alterations from being the regional capital to its contemporary position as a State capital with 17 Local governments within a divided Nigerian federation comprising Thirty-six (36) states (Ezeaku, 2023).Today Enugu is known for its conscious steps toward urbanization and remains a strong symbol of Igbo resilience and pride.

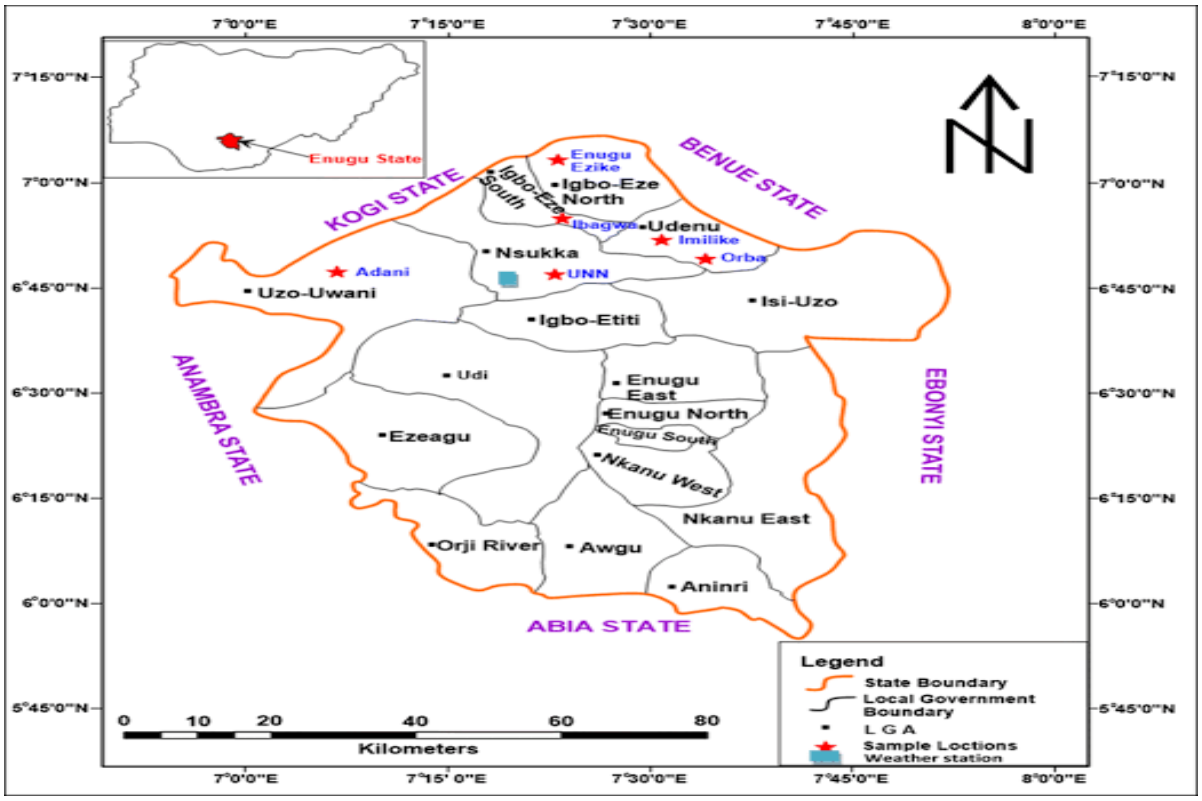

Fig 1. Map showing the 17 Local governments of Enugu State, Southeastern Nigeria.

3. The review of related literatures

Most existing scholarship on Hire purchase and tricycle issues focused on various aspects, ranging from socio-economic effects, impacts on mobility and environmental/ health concerns. In their paper, "Pulmonary functions of commercial Tricyclists (Keke Napep riders) in Enugu State, Nigeria", Ojukwu et.al (2020) took an environmental and health stance in the study of tricycle operations. They mention that tricyclists are continuously vulnerable to vehicle emissions and other pollutants due to the nature of their job and vehicle design, which could be hazardous to their health. They justified their argument by examining the fact that tricycles are powered by gasoline engine or diesel and given the make of the vehicles having no doors and windows expose the occupants to respiratory conditions and environmental degradation. The authors did not look into peasant driver experiences and the socio-economic implications of hire purchase.

Abomaye (2018) in his work "Is the use of Keke Napep (A Tricycle) for poverty eradication in Nigeria: A Reality or mirage?" notes that most Keke drivers are not the immediate owners of the tricycles, but hire purchase the tricycle, so therefore use informal type of business. He states

further that hire purchase scheme makes the riders overdriven with work in order to meet up the payment schedules as the prices increased since they did not possess the financial ability to buy the tricycles directly from the government but from agents who stood up as middlemen, thereby making prices too exorbitant. As a direct result, Keke riders gained little or nothing to save after paying the hire purchase price of the Keke and as such could not generate enough income to take care of their personal needs and have spill over to save.

Mgbemena (2013) in her "Language, communication on wheels and national development: The inscriptions on tricycle (Keke) example" reiterates the truth that commercial transportation is strategic in national economy and enhances mobility of material and human resources. She advices that the proliferation of Keke in major cities as well as the penchant for writing on the different parts certainly calls for an academic inquiry. Furthermore, she stated that Keke Napep as a commercial means of transportation was created to serve as a strategy to convert 'area boys' from idlers to a productive workforce.

Edike (2009) in his newspaper article titled "Napep tricycle operators hail Chime on lifting of ban", addresses the relief of tricycle operators to the good news that the government of Governor Sullivan Chime had withdrawn its position toward banning tricycles. Mr. Hyacinth Ngwu, one of his respondents and coordinator of Napep commended the decision and explained that Keke had been a good alternative to commercial motorcycle operators in Enugu, known as 'Okada', stressing the reduction of cost of transportation in order to facilitate mobility. He encouraged operators and hire purchase organizers not to capitalize on the government's lift of the ban and also encouraged government partnership to subsidize cost and acquire more of the tricycle to improve transport systems in the state.

4. Theoretical framework

This research is hinged on the theory of exploitation by Karl Marx on which he describes exploitation as the "theft of economic power in all class-based societies, including Capitalism, through the working class (or the proletariat) bring forced to sell their labour" (Marx, 1867). It argued that exploitation steals the significant economic inputs of the working-class, especially in capitalist settings and releases the surplus value to the bourgeois class.

Kurtz and Salvadori (2023) analyzed Marx's theory of exploitation thus:

> Whenever a part of the working time of an individual materializes directly or indirectly into products that cannot be used or consumed by him or herself or other persons with whom he or she is deliberately prepared to share them, but are used or consumed by a third party.

As relates to this study, tricycle drivers, who could be categorized as the "proletariat" or "working-class" under hire purchase agreements often work under harsh and exploitative conditions. They are required to remit weekly or monthly payments that exceed the cost of the tricycle over time. This gives rental organizers the ability to accumulate surplus value at the detriment of the drivers, who are bedevilled with the costs of fuel, oil, maintenance, daily taxes on their various units and above all personal and family expectations. These lead them to thrive under the clutches of debt and economic vulnerabilities.

Fig 2. Keke Napep unit in Abakpa-Nike, Enugu East.

However, Harvey (2005) in line with Marx's theory of exploitation notes quite vividly that hire purchase systems create cycle of debt for peasant drivers. He went further to explain that via credit and hire purchase, the impoverished pay more for access to basic tools of survival. Fraser (2016) analyzes the connections between expropriation and exploitation and it would be important to also bridge their relatedness with peasant drivers under rental contracts. Most, lacking adequate legal guidance and government backing fall prey to harsh arrangements which leave them worse off financially. The aforementioned theories form a nexus in understanding how excessive capitalism in hire purchase system of tricycles affect peasant drivers within the study.

5. Research questions

The research questions for this study are to significantly critique the socio-economic impacts of hire purchase of tricycles on peasant drivers in Enugu, Southeastern Nigeria. Apart from this main question, other questions called from this study include:

(a) What are the socio-economic dispositions of tricycle drivers involved in hire purchase in Enugu between 2007 and 2015?

(b) What are the terms and conditions commonly attached to hire purchase agreements during this era and subsequent years?

(c) How has hire purchase system impacted the livelihoods of tricycle drivers and commuters?

(d) In what ways does the system reflect trends of excessive capitalism?

(e) Will government intervention be useful?

6. Research methodology

This study adopts both the descriptive and qualitative method of research. Various active and past hire purchase drivers and organizers were interviewed. Existing materials on hire purchase of tricycles were consulted, synthesized and analysed descriptively in this paper. The relevant information provided from selected interviews has been incorporated in this paper as well as in building relevant data to justify the empirical concern of the research.

7. Participants

This study agrees with Thompson (1978) assertion that oral history democratized history by including voices of ordinary people. Employing field observation and in-depth interviews, the lived experiences of both peasant drivers and hire purchase organizers during these period were collected. This approach justifies significantly the need to examine subjects within their subjective state. It is also important to perceive their lived experiences from an autoethnographical vantage. Ellis (2004) confirms that autoethnography shows how social science can be both deeply personal and profoundly political.

Participants, comprising 5 individuals, were quite helpful in this study. Some of them would be assigned pseudonyms to ensure their confidentiality. Voluntary participation and secondary sources account for the study's comprehension. By examining these drivers and organizers story, we illuminate the unexplored angles of rental arrangements of tricycles in Enugu.

8. Results and Discussions – The lived experiences of peasant drivers and organizers

Interviews and discussions taken to scrutinize the experiences of peasant drivers in Enugu between 2007 and 2015 during the tenure of Governor Sullivan Chime goes an extent to redress the myriad misconceptions held by the public that hire purchase of tricycles or in fact another vehicle or article is a bed of roses and one of the fastest and ideal way of escape from poverty and acceptance into financial liberation, overlooking the very bitter truth that a plethora of factors exist to undermine the system. In the course of this study, I encountered pesons who were quite disillusioned with the exploitative contracts of rental organizers of Keke Napep. For instance, one Mr. M.B, who acquired his tricycle via hire purchase between 2014 and 2015 had this to say:

> "I acquired my tricycle through hire purchase system. I believe that the use of tricycle as a means of earning a living is quite a lucrative business. It allows for flexibility and independence. But the inclusion of hire purchase is a whole different game. Only on rare

> occasions do you get a rental operator who is honest and sticks to the Hire Purchase regulations of the state to the latter. The price of a new tricycle was about N300,000 to N350,000 in 2007. By 2014, the price had increased to about N400,000. I am not a graduate and I lack the means to purchase my own Keke. So I had to go into the rental agreement in order to feed myself and keep up with the cost of living" (Personal Communication, July 6, 2025).

The revelation from this respondent shows the very reason why a lot of unemployed and financially incapacitated persons go into hire purchase agreements.

To explain the very nature of the system, a father of four and a Keke driver who was once a hire purchase driver but obtained his tricycle after full payments explained his contract terms with his hire purchase organizer. He stated that he started tricycle business in 2015. The price of a new TVS Keke Napep as at the time was about N450,000, which based on 2015 exchange rates, equaled approximately €1,920-€2,050 (Exchange-rates.org, 2015). As he noted, he did not have such amount to purchase the Keke, so therefore he resorted to the hire purchase system.The agreement he had with his rental organizer was for him to be given the Keke at the rate of N900,000 – a 100% markup on the original price, to pay a weekly sum of N17,308 for a period of 12 months. He mentioned that he pointed out the harshness of the terms and appealed for a reduction but his plea was dismissed. He was quickly informed that he was free to withdraw from the agreement if dissatisfied, as he could seek alternatives elsewhere. However, given his financial state and the pressure to provide for his family, he had no choice but to accept the contract and commence payment.

> “A litre of fuel in 2015 cost about ₦95. I worked from Monday to Saturday and reserved Sundays for my family. On average, I consumed about 7 litres of fuel daily, which amounted to 42 litres weekly. Due to the competitive nature of the business, my average daily income was around ₦5,000, making it ₦30,000 weekly—though sometimes it was even less. According to the terms of my hire purchase contract, I was required to remit ₦17,308 every week. After making that payment, I was left with approximately ₦12,700. However, this did not account for other essential expenses such as fuel additives, mandatory ticketing fees, engine oil—which I replaced every 7 to 10 days at a cost of around ₦1,800—and general maintenance of the tricycle. If I deducted the weekly cost of fuel (₦4,000), oil (₦1,800), ₦600 weekly ticket fee, I would be left with approximately ₦6,300 (€27.39). This amount was barely enough to cater for my own needs, let alone those of my family. The cost of living is high. I had to provide food, cover utility bills, school fees and take care of other basic necessities. On occasions when the tricycle broke down, my family and I suffered the financial stress. I often had no choice but to secure loans from my Keke association or microfinance banks to repay with high interest. I was really on my toes at the time". (Personal Communication, July 13, 2025).

These data collated from my interviewees revealed the complex and exploitative system of hire purchase of tricycles in urban and peri-urban areas of Enugu.The harsh contractual terms, high operational cost and minimal government regulation have undermined the very reason for the

creation of the system, which was to create a conducive environment for grassroot economic growth and development.

For balance of view, some hire purchase organizers and firms were interviewed in the course of this study. One Mr. C. I, who also sells TVS brand-tricylces stated:

> "Honestly, so many of my counterparts who give out Keke on hire purchase have turned the business into a lucrative one. Most do not follow some hire purchase code of conducts as written in hire purchase act. Before now, I used to trade in Keke parts in Nnewi, Anambra State. I started leasing Keke a little after November, 2013 in Anambra before expanding the business into Enugu State. I have learnt with years of experience that this line of work requires precision and record keeping. I give Keke for hire at various markup prices, depending on how long the driver is willing to pay, which could be between six, eight, ten and twelve months. If the potential driver is willing to pay for the tricycle on six months I would give the Keke at a relatively lower markup of 78% markup. I have always made sure that my contractual terms remain fair to the prospective buyers although I have faced numerous issues while working with some of them. Some of these drivers were very dishonest and displayed unethical behaviors. For instance, as per hire purchase terms, drivers are expected to remit weekly or monthly amounts. However some drivers devised subtle means to try to cheat me. They seldom remit the amount as our agreement state. They would come up with flimsy excuses that they did not make much money for the week and that the tricycles given was constantly breaking down. I would try to understand them by letting them know that they can pay me the amount they owe in subsequent weeks (although the contract does not account for this). But their schemes are cleverly orchestrated and in the subsequent weeks would fabricate other excuses for defaulting. To worsen the whole matter, most of them do not take proper care of the tricycles given them. They ride unethically and end up destroying the tricycle. Some after making these excuses and destroying the tricycle would come back to terminate the contract, thereby carting away with the amounts that they made and on the downside leave me with a destroyed vehicle, with reduced value.For subsequent persons that would come to enter contracts, I would be forced to reduce tremendously the total price of the Keke. This is a major loss" (Personal communication, July 6, 2025).

Fig 3. A tricycle garage in Nike Lake resort road, Enugu State.

To contradict a little the accounts of Mr. C. I, a driver had to recount a first-hand issue one of his friends encountered while on a hire purchase contract.

> "One of my friends signed a hire purchase contract in 2009. I started the transport business before him. I introduced him into the business because he had nothing doing at the time and needed a source of income to provide for himself because he was yet to be married. He had no money to purchase his own tricycle so I advices him to go into a rental system. He agreed. I cannot remember much of the details of his agreements but he signed a good enough deal to finish his payments in twelve months. He, my friend was very dedicated in his weekly payments. Inasmuch as it was quite difficult most of the times, he made sure to keep his bargain. Unbeknownst to him, his rental organizer had somethings under his

> sleeves. In the Tenth month of his payments, the hire purchase organizer instigated a problem. He complained that he, my friend was not keeping some of his own part of the agreement and that he was not taking adequate care of the tricycle given him. He mentioned that they were some undisclosed amount of money that my friend was not remitting so therefore he had to call off the contract and take back possession of his tricycle. It sounded strange. My friend asked which agreement he had faltered in and the organizer mentioned somethings like service fee and the fact that he sold Keke at far less value than the amount he got it. Of course, that was not making any sense but the organizer, with his thugs collected the tricycle forcefully from him. My friend and I appealed this decision but at last, we were not successful. It turns out that the rental organizer was a very powerful man and owing to the fact that the legal system is unfortunately rigged against the common man, we had nothing to do. My friend was devastated as a result of this incident" (Personal communication, July 6, 2025).

From the above interview, it is evident that many rental organizers tend to create disputes late in the contract to reclaim the tricycle without completing the transfer of ownership by using thugs to scare off these drivers. As a newspaper report stated "despite the laws in Nigeria guiding hire purchase agreements, exploitation was still common" (Punch, 2024).

Some commuters making use of tricycles in various parts of Enugu revealed that part of the reasons why the price of transport was going up aside the price of fuel is due to the fact that so many of these drivers tend to make little on the business, therefore they resort to inflating the price of their services. These decisions are taken by Keke unions not minding the economic effect it would have on mobility. One commuter registered his frustrations more in a state of despair than anger. He said:

> "Keke is the the best means of public transportation in Enugu. It has been reliable in conveying persons and goods from place to place. However overtime because this informal means of transport does not have competition, the union has always increased the price of movement. Most times, they do not have control of this increments because the cost of living affects them too. This affects mobility generally" (Personal communication, July 6, 2025).

The effects of unregulated Hire purchase of tricycles is evidently relational to all aspects of the economy in Enugu and beyond. As a result of the exploitative terms of the system, many drivers stay under harsh economic realities which would almost immediately affect cost of transportation for commuters in the state. Keke, though an informal mode of transport which developed unprecedentedly during the tenure of Governor Sullivan Chime, has served greatly as a huge alternative to mobility. The effect of unregulated rental terms has over the years served to undermine mobility and economic freedom.

8. Conclusion

This study examined the effects of hire purchase systems on the livelihoods of tricycle operators in Enugu State, Nigeria during the tenure of Governor Sullivan Chime, 2007-2015 with specific attention to the economic pressures experienced by drivers. Findings reveal that while hire purchase has provided an important alternative to tricycle acquisition and employment

opportunities for impoverished individuals, it also imposes extensive financial burdens due to outrageous contractual terms and exploitative interest rates.

The research portrayed that many drivers struggle with weekly remittances, often working under intense pressure to meet payment deadlines at the expense of personal welfare. Moreover, the lack of regulations and organized agreements has led to numerous disputes between hire purchase organizers and drivers, further making the system unworkable.

While hire purchase provides potential for economic empowerment, in fact it establishes economic ditches for Keke drivers. There is an imperative need for policy intervention and restructuring to ensure fairness and the destruction of exploitation.

9. Recommendations

In light of this research, the following recommendations have been made toward the major findings on exploitative terms of hire purchase of tricycles on peasant drivers:

1. Government regulations: the state government should impose stricter control of hire purchase systems to provide for the protection of both organizers and drivers and also the establishment of a hire purchase regulatory board to oversee all hire purchase agreements.

2. Transparent and Fair Contract Terms: Owners and financiers should ensure that all terms of the hire purchase agreement are presented in clear, unambiguous language. Drivers must be made fully aware of the total cost of the tricycle, payment schedules, penalties for default, and conditions for repossession.

3. Flexible Repayment Arrangements: Considering the fluctuating daily income of tricycle operators, repayment schedules should be made more flexible. Weekly or bi-weekly payments, alongside reasonable grace periods, would reduce default rates and promote smoother ownership transitions.

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Appendix: List of interviews cited in the Text

Table 1: Summary of interviews

Code	**Interviewee/Role**	**Place**	**Date**
Interview 1	Former Hire Purchase driver	Abakpa, Enugu	6/7/2025
Interview 2	Former Hire Purchase driver	New Haven, Enugu	6/13/2025
Interview 3	Hire Purchase organiser/garage owner	Abakpa, Enugu	6/7/2025
Interview 4	Friend of a Hire Purchase driver	Abakpa, Enugu	6/7/2025
Interview 5	Commuter	Ogui Road, Enugu	6/7/2025

LEVERAGING MICRO-MOBILITY AGAINST SECURITY CHALLENGES IN ABUJA

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ABSTRACT

In recent times, the synergy between commercial transport and the escalating risk of kidnapping, popularly referred to as 'one chance,' in Abuja has posed a precarious concern within the city's transportation landscape. The unique status of Abuja as the federal capital territory has contributed to its fast-paced urban growth, attracting an influx of people and investments. However, this rapid expansion has exacerbated critical urban issues, including traffic congestion and heightened security risks. The adoption of innovative and efficient transportation solutions is imperative for improving mobility while safeguarding the city's residents and visitors. Among such solutions, the advent of micromobility services has redefined urban transportation. This evolution in transportation addresses pressing urban challenges, particularly those related to safety and security. The real-time tracking, identity verification, and trip documentation inherent in micromobility platforms are highly instrumental in reducing the risks associated with the traditional modes of transit in Abuja. Despite these advancements, research on leveraging micromobility solutions to address Abuja's specific security challenges remains limited. Existing studies like Environmental Justice: Making a Case for Sustainable and Equitable Urban Mobility in Abuja by Mathias Agbo highlight the potential of technologies like geo-spatial tools and the socio-economic benefits of e-hailing services but often overlook their role in mitigating crimes like "one chance" and kidnapping. Furthermore, little attention has been paid to how micro mobility platforms collaborate with security agencies or utilize advanced technologies like AI and IoT for safety enhancement. Hence, this study seeks to examine the integration of micromobility solutions into security strategies, with a focus on their role in mitigating criminal activities such as "one chance" and kidnapping. Laconically, leveraging advanced technology and partnerships with governmental security agencies, micromobility systems hold the potential to not only enhance urban mobility but also transform Abuja into a benchmark city for safety and innovation in Nigeria's transportation landscape.

Keywords: Micromobility, Insecurity Challenges, One Chance, Urban Growth

Introduction

Micromobility is a made up of two words: micro and mobility. To fully understand what micromobility means, it's pertinent to first grasp the meaning of each word individually. In simple terms, mobility means movement. Mobility as defined by Matteo Colleoni (2011) is the objective and subjective propensity to be mobile in space with any mode, in order to reach places where social activities are to be carried out in everyday life. The word "micro" in micromobility refers to the small scale of both the vehicles and the distances they are designed to cover. Therefore, micromobility is the use of compact, lightweight mode of transportation such as bicycles, e-scooters, and electric skateboards, which are ideal for short trips typically under five kilometers. These modes are easy to maneuver, cost-effective, and environmentally friendly, making them well-suited for urban areas like Abuja. Suufix to say that micromobility is everything lighter than a car. In the podcast entitled "Micromobility", Horace Dediu, a tech industry analyst expounds that:

> "Micromobility is a word that covers everything that is ignored in the eyes of automobility. Not currently considered legitimate in the eyes of automobility, the debris, the stuff that we've swept aside, and frankly is discriminated against. It's a term to give an umbrella to all of the invisibles, the types that are L or light category (lighter than a car) or 'not a car'."

In Abuja, where the traditional modes of transportation like minibuses, taxis (popularly known as along), Okadas, and Keke Napeps dominate and often lack regulation and accountability, micromobility presents a rising alternative that challenges the status quo and offers new tools for tackling urban insecurity. While these modes serve a large portion of the population, they are also vulnerable to exploitation by criminal elements. According to BusinessDay, Abuja has witnessed over 200 kidnapping cases between 2021 and 2023, with hotspots including Gwagwalada, Kuje, and Lugbe. The anonymity of unregistered vehicles and the absence of digital tracking make it difficult for law enforcement to respond effectively. In contrast, micromobility platforms when integrated with GPS and mobile apps can offer safer, more transparent alternatives for short-distance travel, especially in high-risk zones.

Moreover, micromobility can serve as a social intervention in Abuja's fringe settlements, where infrastructure is poor and security presence is minimal. As Arc Baba Isimi in BusinesDay notes, informal areas like Mararaba, Masaka, and Zuba lack basic urban amenities, creating environments where crime thrives. Introducing shared micromobility systems in these areas could improve accessibility, reduce isolation, and enable residents to move safely without relying on unregulated transport. It also aims to look at existing transport patterns, community perceptions, and possible initiatives to build a framework for implementation. Ultimately, the

goal is to present micromobility not just as a rising contender in urban transport but as a catalyst for peace, progress, and public safety in Nigeria's capital.

Literature review

The reviewed study by El-Husseiny et al. (2024) presents ample Systematic Literature Review (SLR) fringed on sustainable urban mobility across African and MENA university campuses. It screened 258 articles and distilled 43 using PRISMA and BSMS techniques, identifying six key themes: travel behavior, policy and planning, environment and energy, gendered mobility, health and pandemics, and access for persons with disabilities. Among these, travel behavior emerged as the most frequently addressed theme, with survey questionnaires being the overriding research method. They also elucidate that university campuses are often vulnerable to criminal activities such as robbery and kidnapping. This vulnerability is particularly pronounced due to the fluctuating nature of campus environments: busy during the day and often quiet at night which poses risks for students attending night classes. The University of Abuja, for instance, is cited as a high-risk zone where students have been exposed to such threats, largely due to its open layout and limited security infrastructure. Given these concerns, the potential of micromobility to mitigate campus-related security risks warrants serious attention. This paper therefore reveals how micromobility can contribute to creating a more secure and accessible environment for students, particularly in high-risk university zones like those found in Abuja.

Secondly, Chima Adeyemi's Urban Micro-Transport Innovations in Nigeria reiterates that the development of micromobility systems in Lagos and Abuja. His work explains how bicycle-sharing and e-tricycle services have been introduced through government-led initiatives, with attention to infrastructure, policy, and user demographics. This makes the book an expedient resource for understanding how micromobility is being integrated into Nigeria's urban transport landscape. He also mentions vandalism but does not address these more serious threats. There is little discussion on how micromobility platforms could include safety features such as GPS tracking, verified drivers, or digital payments to protect users from criminal activity. Chima Adeyemi's Urban Micro-Transport Innovations in Nigeria: Case Studies from Lagos and Abuja offers a foundational analysis of micromobility development in two of Nigeria's key urban centers. He provides detailed documentation of government-led initiatives introducing bicycle-sharing and e-tricycle services, with particular attention to infrastructure upgrades, policy frameworks, and user demographics. Adeyemi effectively outlines how infrastructure development, policy support, and user demographics are being integrated into the broader urban transport landscape, making the work a valuable resource for scholars and policymakers interested in sustainable mobility solutions within the Nigerian context.

Shared Mobility in West African Cities: Policy, Practice, and Social Impact by Ifeoma Nnadi and Henry Okeke explored the shared mobility systems across major West African cities, including Accra, Dakar, and Lagos. The authors focus on communal ride-hailing and micro-shuttle schemes, analyzing how these services have improved urban access for underserved populations. Their emphasis on equity and economic inclusion is particularly valuable, as they examine how shared mobility reduces transport costs, expands access to jobs, and supports informal economies. This makes the book a strong resource for understanding the social benefits of mobility innovation in developing urban contexts. They discuss regulatory gaps, infrastructure limitations, and the need for inclusive planning, especially in cities with fragmented transport systems. Their comparative approach across multiple cities allows readers to see patterns and divergences in how shared mobility is evolving across West Africa, making the book useful for regional benchmarking and policy transfer. Importantly, the role of digital platforms in streamlining bookings, payments, and fleet management was analysed discussing how mobile apps and backend systems have enabled more efficient service delivery and user engagement.

Research methodology

The paper employs a descriptive and qualitative research methodology, solely from case studies, interviews, focus group discussions, and observational studies to discuss how micromobility can be effectively leveraged to address security challenges within Abuja's urban transportation system.

Results and discussion

The rise of "One Chance" taxi crimes in Abuja often involving unregulated taxis locally known as along pose as a stark example to how insecurity has infiltrated the city's transportation routes and movement networks. These taxis, typically a plethora of unpainted and unregistered, pose as legitimate commercial vehicles but are frequently used by criminal gangs to rob, assault, and even abduct unsuspecting passengers. A notable case is that of Esther Okoh, a teacher who boarded an along taxi early one morning and was attacked, robbed, and left unconscious in a roadside gutter near Dei-Dei. Her story, reported by Legit.ng, reflects the vulnerability of commuters who rely on informal transport options, especially during off-peak hours. Similarly, the tragic death of Grace Godwin, a 23-year-old fuel station attendant abducted in Mabushi and later found dead in Jabi, underscores the deadly risks associated with these unregulated taxis.

Furthermore, insights from a focus group discussion involving eight participants revealed that the recurring nature of "One Chance" crimes where unsuspecting passengers are lured into fake

taxis and subsequently robbed or harmed has instilled widespread fear, particularly among women and early-morning commuters in areas such as Lugbe, Kubwa, and Gwagwalada. When probed further on whether these crimes could be considered gendered in nature, one participant acknowledged that women are disproportionately affected. After being introduced to the concept of micromobility, another participant noted that such platforms could offer women greater control over their travel experience. With features like verified drivers, GPS tracking, and cashless transactions, micromobility services were seen as a safer alternative that could reduce exposure to predatory transport systems.

Participants of the focus group discussion. From the left; Nsikak, Miriam, Glory, Angel, Blessing, Dorathy, myself, Hannah and David.

In Abuja, many commuters rely on shared commercial vehicles like minibuses and taxis (along) that operate with minimal oversight. These vehicles often pick up passengers at busy hubs or roadside stops, which unfortunately have become hotspots for criminal activity, especially the "one chance" kidnappings. However, micro mobility llke bicycles, e-scooters, and small electric vehicles offers personalized, flexible transport options that don't rely on large, shared vehicles or crowded pickup points. It also eliminates the need to interact with unknown drivers or vehicles. You're not stepping into a car with strangers because you're in control of your own ride. In essence, decentralization through micro mobility empowers individuals to opt out of risky transport systems and choose safer, more transparent alternatives.

Along taxi in Abuja

In satellite towns like Gwagwalada and Maraba, where the daily commute to the city center can be a real struggle, micro-mobility options such as cycling and e-scooters ease traffic congestion and produce zero emissions, helping to curb Abuja's growing carbon footprint from taxis and private cars. It's not just about convenience it's about reclaiming safety and autonomy in a city where public transport has become a gamble.

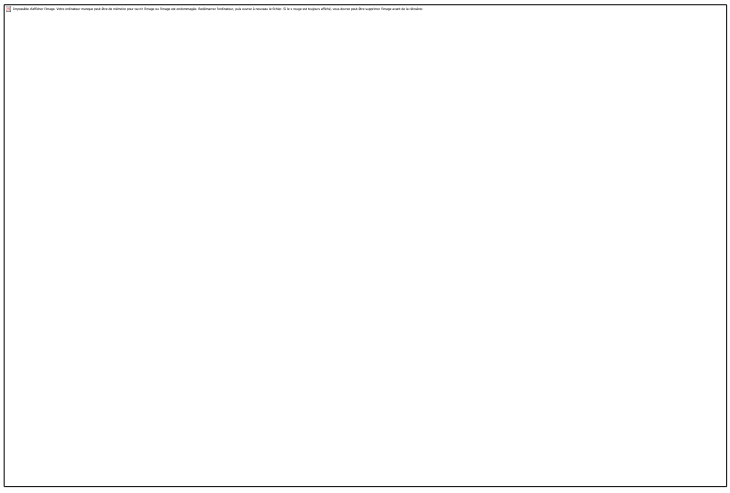
In consonant with the above, sports like cycling can improve the quality of life and make crimes more difficult to commit. Little wonder why the 47-year-old Nurse Catherine encouraged residents to adopt cycling as part of their daily routine propose solution to urban challenges. According to her, it begins with promoting cleaner air and improving public health by reducing exposure to traffic-related pollution, which is known to trigger respiratory conditions such as asthma, bronchitis, and chronic obstructive pulmonary disease.

> "As individuals engage more in active mobility, they also counter the effects of sedentary lifestyles, thereby lowering the risk of cardiovascular disease, type 2 diabetes, and certain cancers through improved fitness and heart health" she said.

Beyond physical well-being, fewer cars on the road lead to less congestion and fewer confrontations, especially in areas where traffic stops are prone to volatility. As micromobility become more common, foot traffic increases, making streets busier and naturally deterring criminal activity since offenders are less likely to act in visible, populated spaces. This rise in pedestrian and cyclist presence fosters stronger community interaction, turning everyday citizens into informal observers who can report suspicious behavior and build trust with local law enforcement. Furthermore, micromobility initiatives such as cycling can engage young people in structured, purposeful activities that instill discipline, teamwork, and a sense of belonging, thereby redirecting their energy away from crime and toward positive development. This was explicitly captured in Australian Institute of Criminology,

> "Crime prevention is not the primary objective of sport and physical activity, but it might be an extremely positive byproduct. Sport and physical activity programs may result in immediate crime prevention, and those that involve members of the community on a continuing basis may be sustainable".

The campus environments in Abuja have increasingly become hotspots for daily traffic congestion and mobility stress, largely due to their location within underserved transport corridors. This observation prompted the development of a questionnaire, which was distributed among IT students at my place of primary assignment to gather their perspectives on the issue. Their responses revealed a consistent pattern of concern across institutions. At the University of Abuja, situated along the busy Abuja–Lokoja expressway, students commuting from areas such as Giri and Gwagwalada endure long and often unsafe journeys. These routes are plagued by poor road infrastructure and a heavy reliance on unregulated motorcycle taxis, which heightens their exposure to accidents and criminal activity. Meanwhile, Nile University and Baze University, both located near the Airport Road and Jabi respectively, face distinct but equally troubling challenges. Baze, known for its elite student population, has become a potential target for abductions, as perpetrators perceive a higher likelihood of ransom payments from wealthy parents. The University of Abuja, due to its large population and open layout, is particularly vulnerable to criminal schemes like “one chance,” where commuters are lured into fake taxis and robbed.



Traffic congestion in Abuja

From the foregoing, students across these campuses are often high-value targets, carrying expensive gadgets and cash, yet they navigate poorly regulated transport corridors with minimal law enforcement presence. The lack of coordinated transport planning has created bottlenecks that not only slow movement but also compromise safety. For example, the Giri junction near the University of Abuja is notorious for gridlock. These conditions have led to an increase in theft,

harassment, and road accidents, particularly during early morning and late evening hours when visibility and security are lowest.

In light of these challenges, micromobility presents a practical and transformative solution. By encouraging students to adopt cycling as a primary mode of transport, institutions can help reduce dependence on unsafe and congested roadways. Cycling offers a safer, more flexible alternative for commuting between classes, hostels, and lodges, especially in areas where formal transport systems are lacking. It also minimizes exposure to criminal hotspots and allows students to move independently without relying on potentially dangerous commercial vehicles. Beyond convenience, micromobility promotes a healthier and more connected campus culture, where students can reclaim public space and contribute to a safer urban environment. As Abuja continues to grow, integrating cycling infrastructure and promoting active mobility around its campuses will be essential in creating a more inclusive and secure city for its student population.

Some Nigerian youths in a cycling competition

Apparently, these incidents have prompted responses from both the public and authorities. The Federal Capital Territory Administration (FCTA) propelled a curb on illegal transport operators, impounding over 40 vehicles and 52 motorcycles linked to criminal activity, (Feyisola, 2025). Officials stressed that the anonymity of unpainted taxis makes them difficult to monitor and easy for criminals to exploit. Despite these efforts, the lack of a structured and traceable transport system continues to leave many residents exposed to danger.

Succinctly, micromobility presents a safer and more transparent alternative to these informal systems. When integrated with GPS tracking, digital payment platforms, and user verification

features, micromobility services such as e-scooters and shared bicycles offer traceable and accountable transport options. Unlike along taxis, which are often not registered and difficult to trace, Abuja can improve safety by using platforms like Opay tricycles, Opay ride-hailing, and ORide services. One of the key features of most equipment and appliances is to ensure user safety. The co-founder of Swifty Scooters, Jason Iftakhar (2019), said:

> "Safety is something no product should ever compromise on, and is foremost in what we do at Swifty. That's why we build our scooters to last, and why we have given them features like bigger wheels and proper brakes".

It can be derived from the above that micromobility solutions when thoughtfully designed, prioritize safety, making them a reliable and secure option for everyday transport. More so, these services are safer because every trip is tracked using GPS, and each driver's details like their name, photo, and vehicle number are saved in the system. This makes it harder for criminals to hide or operate without being noticed. Cities like Kigali and Nairobi have already shown that using technology in transport can help reduce crime and build public trust. Abuja can do the same by expanding services like Opay in areas where people are more exposed to risk, such as Lugbe, Nyanya, and Gwagwalada.

Nonetheless, government and urban planners should integrate bikes and scooters into the city's transport strategy and offer incentives to ensure they're used safely, while also building dedicated lanes, installing proper lighting, and providing secure parking. At the same time, public awareness campaigns can teach residents how to ride responsibly and steer clear of risky one-time offers, and collaborations with tech startups and security firms can embed essential safety features like panic buttons, GPS tracking, and emergency alerts. AI-driven analytics can be used to analyze pooled trip and environmental data to predict emerging risk zones, allowing operators to adjust vehicle availability in real time. Geofencing technology, powered by GPS, can automatically slow down or disable vehicles in areas with high pedestrian traffic or elevated crime rates, enhancing safety. Additionally, real-time anomaly detection models can monitor riding patterns and identify suspicious behavior, such as sudden detours into poorly lit or isolated areas. These systems can then trigger instant alerts to riders or nearby response teams, helping prevent potential incidents before they escalate.

Conclusion

Summarily, this paper shows that even though micro-mobility won't put a permanent halt or resolve Abuja's security crisis overnight, but it offers a nimble, tech-savvy alternative to the vulnerable status quo. Judging by how swiftly new security challenges emerge, the root causes such as economic instability and lack of opportunities still demand long-term attention. Beyond its role in mobility, micromobility can also become a premeditated tool for augmenting urban safety and wellbeing. When supported by local councils and integrated into extensive urban planning efforts, cycling and other micromobility options can help residents move with greater confidence and less fear. As Abuja continues to develop, the implementation of micromobility as both a transport and safety solution could lay the foundation for a more inclusive, secure, and forward-thinking city. With the right policies and infrastructure in place, micromobility has the potential to redefine Abuja's urban experience. By decentralizing movement and embedding transport options within digital ecosystems, the city can reduce its reliance on informal and often unsafe transport modes. This shift not only minimizes exposure to crime but also builds public trust in the mobility system. Students, workers, and everyday commuters can benefit from safer, more predictable travel routes, especially in areas previously underserved by formal transport planning.

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Colonizing Bicycles: The Global Marketing of Raleigh Bicycles in Sub-Saharan Africa, 1950s-1960s

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Working Paper

Please do not circulate

PATRICK BEK

HENK-JAN DEKKER

Abstract

This paper examines how the English bicycle manufacturer Raleigh deployed framings of race, gender, and technology in their marketing practices during the mid-20th century, revealing the entanglements between consumer technology, mobility, and (post)colonial ideology. Drawing on Laura Ann Stoler's analysis of how colonial power operated through everyday practices, and Cindy Ott's visual culture methodology, we demonstrate how colonial and post-colonial bicycle advertisements functioned as sites for reproducing racialized imaginaries of technological progress and modernity. The study focuses on visual representations in Raleigh's global marketing materials, particularly analysing advertisements depicting African man and women in relation to bicycles. Through visual analysis and close reading of these marketing materials, we argue that bicycles were not neutral technological objects but rather became embedded in discourses of modernity and post-colonial development, using Eurocentric tropes that often persevered after independence. This research contributes to our understanding of how mundane consumer objects became carriers for and how mobility itself became entangled with such ideologies – with implications for contemporary discussions of mobility justice in the Global South.

Keywords: bicycles, advertising, Raleigh, global history

Introduction

The bicycle has been extensively studied as a vehicle for recreation, sport, and personal transportation in Western contexts, but its role outside Europe remains rather understudied. While interest is growing, apart from a few articles on Asia or (sport) cycling in Latin-America, cycling in Africa in particular is still largely invisible.[1] There is growing evidence that this is an egregious oversight. As Gijs Mom has recently argued in his history of global automobilism, "mobile modernity in the non-West should not and cannot be analysed through the lens of automobility," and he asks whether "that other nearly simultaneous invention, the bicycle" could be an alternative lens.[2] A new book on Africa's cycling history shows the important role bicycles have historically played in the continent, yet a recent history of the United Africa Company's many business ventures in West Africa does not even mention cycling and its role as an importer of Raleigh bicycles.[3] Bringing together aspects of mobility and business history, this article investigates the global marketing of bicycles by Raleigh, one of the most important bicycle manufacturers of the twentieth century, as one lens on African cycling. Based on an archive of advertisements, we investigate the discourse and strategies used by Raleigh to market bicycles in Africa.

Drawing on Laura Ann Stoler's analysis of how colonial power operated through everyday practices, and Cindy Ott's visual culture methodology, we study a set of sources that primarily focus on Africa but also contain advertisements for Asia and Latin-America. This paper is based on a set of advertisements from the Raleigh archives in Nottingham, the UK. The collection employs the same visual style and rhetorical tropes. Not all the advertisements are dated, but those that are all have a date between 1957 and 1962 and given the consistency in style we assume the undated advertisements to be from this period. By comparing these different areas, and by adding in some advertisements aimed at a European or American market, we aim to chart the ideologies and strategies involved in globalizing/glocalizing the bicycle in the years around 1960. This period is particularly interesting for at least two reasons: it is a period in which many African states were

[1] A few notable exceptions include Nwabughuogu, "The Role of Bicycle Transport in the Economic Development of Eastern Nigeria, 1930–45"; Arnold and DeWald, "Cycles of Empowerment?"; McCracken, "Bicycles in Colonial Malawi"; Tao, "Making a Living"; Smethurst, *The Bicycle*; Brown, "Cycling in South America, 1880-1920." For European cycling history, see Oldenziel et al., *Cycling Cities: The European Experience*.
[2] Mom, *Globalizing Automobilism*, 72. The scholarship on automobility in Africa is larger than that for cycling, see e.g. Hart, *Ghana on the Go*; Denning, *Automotive Empire*.
[3] Oldenziel, *Cycling Cities: The African Experience*; Jackson et al., *Architecture, Empire, and Trade*.

in a process of decolonization and fight for independence, and it is a period in which many states in the Global North experienced a shift from mass bicycle use to mass car ownership. This double transitional movement is a rich basis for our analysis.

Our main research questions are: How did Raleigh's marketing strategies adapt to or reinforce (post)colonial hierarchies across different regions? What role did visual representation of race, gender, and technology play in constructing notions of modernity? And too what extent, if any, did bicycle advertisements transform after formal independence in colonized nations?

In the period around 1960, British firms adjusted to changing markets, as African countries moved from colonial domination to independent nations. Stephanie Decker analysed how British firms used advertising to build corporate legitimacy by framing their corporations (e.g. banks) and imports (e.g. sewing machines) as instruments of national development in West Africa from the 1950s through the early post-colonial era. She shows how ads – through era-specific media like newspapers, radio, billboards – were tailored to tap into emerging nationalist aspirations and modernization narratives among newly independent nations in West African countries (i.e. development narrative). European firms marketed services and products not just for utility, but also as symbols of prestige, household improvement, and modern living (technological framing).[4] To survive the end of empire in Sub-Saharan Africa, British firms were forced to overhaul their operations adapt to the new political realities in Africa – strategically, politically, and in terms of public relations. A key shift involved intensified advertising efforts aimed at African audiences. In the 1950s, advertisements relied on imperial symbolism, but by the 1960s they increasingly portrayed themes of African modernity. During the 1950s and 1960s, advertising in sub-Saharan Africa began shifting from colonial portrayals of Africans as childlike and traditional to more modern, aspirational representations, Decker argues. Whereas earlier ads portrayed Africans in static, underdeveloped settings, by the late 1950s, companies like the United Africa Company (UAC) began promoting Africans as "Men of Tomorrow," depicting them as young professionals in urban, modern contexts. Despite this shift, many campaigns continued to recycle colonial tropes, remaining patronizing. This gradual transition from colonial to postcolonial advertising, Decker argues, reflected broader political and economic shifts, during which British firms sought

[4] Decker, "Corporate Legitimacy and Advertising."

legitimacy in newly independent nations by adopting economic development rhetoric and positioning European firms as vital partners in post-independence national progress and modernization.[5]

This article contributes not only to filling a gap in cycling history but also to global history of business and technology more broadly by offering insights into how technologies were mobilized as cultural carriers of imperial ideologies. By examining bicycle advertisements as visual texts, we show how seemingly neutral technological objects became vehicles for reproducing hierarchies of race, gender, and modernity across global contexts. Our analysis provides an important but until now ignored example of how consumer capitalism intersected with imperial projects to create visual and textual narratives that assumed Western technological superiority while positioning former colonized subjects as perpetual latecomers to modernity.

This paper also redresses another omission in bicycle history. As Carlo Mari argues in *A Business History of the Bicycle Industry* (2021), "Marketing is very often a neglected topic within bicycle history literature." An omission, he claims, since the bicycle industry was instrumental in the development modern marketing strategies – particularly that of automobility. Marketing historians have also tended to overlook bicycle marketing, as they focus mostly on marketing of other consumer goods, such as foods, detergents, toiletries, home appliances and cars.[6] Mari has provided an extensive historical overview of bicycle marketing since the late nineteenth century. He did not, however, investigate bicycle marketing in African markets.

The historical representations we analyse continue to echo in contemporary mobility landscapes across the Global South. As cities from Lagos to Jakarta grapple with transportation planning and sustainable mobility transitions, the colonial legacies of mobility hierarchies persist in infrastructural decisions, cultural attitudes toward cycling, and policy frameworks. Understanding how bicycles—once marketed as symbols of European modernity—became coded through colonial imaginaries helps explain current mobility justice challenges, including the

[5] Ibid. On the process of independence see for instance Cooper, *Africa Since 1940*.
[6] Mari, *A Business History of the Bicycle Industry*.

marginalization of cycling infrastructure in urban planning and the continued association of bicycles with poverty rather than sustainable innovation in many formerly colonized regions.
The article is structured as follows. In section one we elaborate our theoretical framework. In the next section we present a visual and textual close reading of bicycle advertisements in Africa, which are then analysed in the context of glocalization debates in section three.

1. Theoretical Framework

Our sources are produced by an English company – to what extent can this type of source shed light on the everyday reality and experience of cycling in the Global South? As Laura Ann Stoler argues in *Along the Archival Grain* (2009), empire's reach was not just political and economic but also intimately woven into the daily lives of both colonizers and colonized.[7] Colonial ideologies were reproduced not only through governmental and institutional structures but also through social and cultural interactions that were embedded in everyday life. The marketing of bicycles in the colonial context can be seen as part of these reproductions. By emphasizing their products' association with European notions of progress, refinement, and modernity, this paper shows how English bicycle manufacturer Raleigh appealed to these colonial ideologies.

This paper adopts a 'visual culture' approach to historical advertisements, following Cindy Ott's tool kit 'Seeing History in 2-D' (2021) that helps analyse images as "constructed truths" rather than unmediated reflections of reality. Building on the works of Roland Barthes, Ludmilla Jordanova, and Martha Sandweiss, among others, Ott's approach foregrounds the interpretive potential of visual sources within historiography.[8] She proposes a two-step framework for analysing images, enabling deeper understanding of how images communicate meaning across time and place.

[7] Stoler, *Along the Archival Grain*.
[8] Ott, "Seeing History in 2-D." References by Ott: Barthes, *Camera Lucida: Reflections on Photography*; Barthes, *Mythologies*; Jordanova, *The Look of the Past: Visual and Material Evidence in Historical Practice*; Sandweiss, *Print the Legend: Photography and the American West*.

Step 1 focuses on examining the image *within the picture frame*. Key elements include identifying the focal point, directional lines, and spatial relationships to construct a visual narrative. Analysts are encouraged to assess colour schemes, scale, and contrast to interpret visual hierarchies and themes. Attention is also given to individual actors and anomalous details – something unusual or out of place in the overall visual representation – that may carry interpretive significance. The goal is to infer underlying values and messages conveyed by the image-maker through compositional choices.

Step 2 shifts the analysis *outside the picture frame*, the historical and cultural context of the image. Here Ott warns against "presentism", the imposition of contemporary perspectives on historical images. She urges historians to consider the image's historical contexts of production, circulation, and reception, including its placement in media and intended audience. Drawing on postcolonial critiques of representation and Ann Laura Stoler's conception of archives as sites of both knowledge and erasure, Ott also highlights the importance of what is made visible and what is absent – what or who is omitted from the frame –, and how such inclusions and omissions shape meaning. Finally, she encourages considering multisensory cues (e.g., sound, smell, motion) that may be implied visually, enriching the interpretive process. This paper analyses Raleigh's advertisements for African markets from these perspectives.

Regarding marketing strategies specifically, Mari shows how bicycle industries from the late 1890s century onwards adopted a form of market segmentation in their marketing strategies. In contrast to mass marketing – not recognizing diversity of consumers –, market segmentation entails clustering (projected) consumers into groups with distinct characteristics, behaviours, needs and wants. For each of those groups specific offerings and campaigns were launched. Based on a study of catalogues and prices lists from bicycle manufacturers between 1899 and 1954, Mari concluded that bicycle markets were typically segmented in gender, age, bicycle usage, price sensitivity, and anthropometric measures (see figure below). Looking at more recent catalogues of bicycle manufacturers, Mari claims that this segmentation still holds up until present-day bicycle marketing strategies.[9] The question is, however, whether a similar market segmentation was used for marketing bicycles in Sub-Saharan Africa, since Mari did not investigate bicycle marketing in

[9] Mari, *A Business History of the Bicycle Industry*.

African markets. While the globalization of automobility has been extensively studied, bicycle marketing outside the global North has not been studied yet to our knowledge.[10] Decker has shown that British companies in the 1950s and 1960s adopted new marketing strategies and narratives in this period, applying post-independence concepts of development and modernity. Was this also the case with Raleigh's bicycle marketing in Africa?

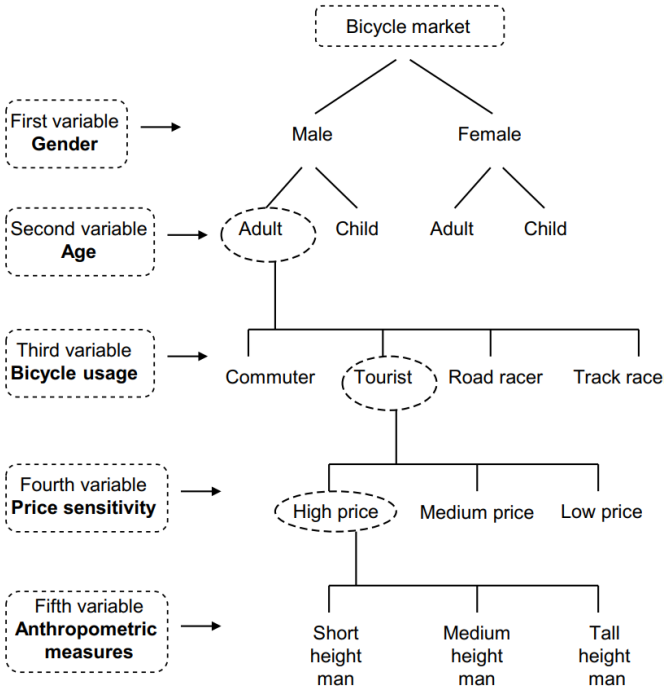

Figure: Bicycle market segmentation in the 1900s, source: Mari, 2021

[10] Mom, *Globalizing Automobilism*; Wolfe, *Autos and Progress*, see page 70-73 for a discussion of American car marketing in Brazil.

2. Marketing Bicycles in Africa

Raleigh's road to glocalization

Raleigh was founded in 1886 on Raleigh Street, Nottingham, by the entrepreneurs Richard Woodhead, Paul Angois, and William Ellis.[11] Frank Bowden joined in 1887 after encountering a Raleigh bicycle in London. Impressed by its innovation, he invested in the firm and by 1889, it became the Raleigh Cycle Company (Millward). Bowden expanded production dramatically and bought out his partners in 1894, bringing in engineer George Mills to improve manufacturing, boosting productivity.

In the bicycle-crazy world of the late nineteenth century, Raleigh initially thrived, targeting wealthy customers with premium bicycles. Following the 1890s market crash, Raleigh adapted by reducing prices and adopting American mass-production and German steel-pressing techniques, coining the phrase "the all-steel bicycle".[12] Bowden emphasized international exports and innovative marketing. In the 1920s and 1930s, Raleigh increasingly faced global competition and economic depression but remained a significant market presence through efficient production and aggressive marketing. The company offered cheaper models for colonial markets and introduced localized adaptations. Despite failed diversification into motorcycles, Raleigh maintained strong exports—by 1939, one-third of its over 313,000 bicycles were sold abroad.[13]

After World War II, Raleigh continued its tried and trusted brand strategy: they sold high-quality bicycles designed to meet customer needs. Its sales force and agents sent huge orders to Nottingham, but Raleigh had difficulties to cope with producing sufficient cycles in time. This was partly due to restrictions in steel and component supply. Furthermore, its production methods, while resulting in high quality cycles, consisted of a mix of mass and batch production methods, leading to additional inefficiencies[14] The result was that Raleigh missed a window of opportunity, which was taken up by lower-priced competitors, while later on newly independent countries like India and South Africa instated quota in order to promote local industries. Other countries, like the

[11] Hadland, *Raleigh Past and Presence of an Iconic Bicycle Brand.*; Lloyd-Jones and Lewis, *Raleigh and the British Bicycle Industry*.
[12] Hadland, *Raleigh Past and Presence of an Iconic Bicycle Brand.*, 34.
[13] Lloyd-Jones and Lewis, *Raleigh and the British Bicycle Industry*, 275.
[14] Lloyd-Jones and Lewis, *Raleigh and the British Bicycle Industry*, 237–38.

USA protected local industry with import tariffs. The British cycle industry struggled, and manufacturers were bought up or merged. By 1960, Raleigh merged with BCC and became part of the TI group.

In this period, the cycle customer base was hugely diversified. Raleigh supplied cycles to any country where people showed an interest in cycles and cycling. Cycle use had become embedded, and this had resulted in particular models and accessories. This is visible in the twenty-five catalogues that Raleigh produced for eighteen countries in 1954 (Archive DDRN/4/5/2). Each catalogue was based on the same format. Its contents varied. For some countries (Canada, Switzerland) Raleigh presented special models. For others the range of bicycles was typical: more sports bicycles for the US, sturdier for the Dutch. For Malaya, only gent's cycles were shown. In some countries, Raleigh sold balloon tyre models or double top tube models. Furthermore, there were differences in accessories.

As a response to import restrictions, Raleigh set up production facilities in export countries, for example, in South Africa (1952) and India (1952).[15] Production staff from Nottingham were sent to these countries to build and start-up these new facilities and train local staff. So, Raleigh became an exporter of bicycle production as well.

African bicycle imports in the 1950s and 1960s came from various sources with Raleigh being important but not the only one. Particularly in West Africa, where the United Africa Company was active as the official distributor of Raleigh bicycles, it sold in great numbers: by 1950 no less than 200.000 per year in Nigeria.[16] Enjoying a solid reputation, the Raleigh Superbe model "had become a glittering status symbol in Nigeria, known locally as the Farin Keke ("white bicycle")."[17] Particularly successful in Nigeria, in Tamale, Ghana, Raleigh faced stiff competition from Chinese Phoenix bicycles. While Raleigh, as we will see, marketed its bicycles as extremely durable, the

[15] This trend towards more localised activities and production continued. In the 1970s, Raleigh had a world-wide distributive and retail network with associate and subsidiary companies in Eire, Holland (probably Sturmey Archer), the USA, South Africa and Malaysia. Raleigh products were manufactured under licence in Ceylon, New Zealand, Mexico, Mozambique, Togo and Dahomey (Account of Company's exporting activities, 1970s, DDRN/7/2/33).
[16] Madugu, "Kano, Nigeria: Raleigh Riches, Achaba Hustle," 3. On the role of the UAC, see among others Fieldhouse, *Merchant Capital and Economic Decolonization*; Murillo, "'The Devil We Know.'"
[17] Madugu, "Kano, Nigeria: Raleigh Riches, Achaba Hustle," 4–5.

Chinese bicycles, constructed with farm work in mind, were popular in Tamale.[18] In other countries, Raleigh seemed to have gained less of a foothold. Bicycle imports in 1960s Bamako for instance came from Poland and Czechoslovakia through the Société Malienne d'Import-Export (SOMIEX).[19]

In East African countries like Uganda, Kenya, and Tanzania, merchants from the Indian subcontinent traded in bicycles, including Raleigh. This has been documented for Kampala and Nairobi.[20] Here as well, in more recent decades the competition with Chinese brands became fiercer, but the years around 1960, Raleigh still carried a significant prestige. This extended also to other (former) British colonial areas like Malawi and South Africa.[21]

Raleigh's marketing targeted (former) British colonies in three sub-Saharan African regions: Nigeria and Ghana (British West Africa), Kenya and Uganda (British East Africa), and Southern Africa. These countries became independent around 1960. The advertisements analysed here are from the same period: when the archival materials contain a date, it is between 1957 and 1962. We present an overview of the advertisements for each region in turn.

Nigeria and Ghana

Raleigh bicycles were popular in Nigeria and Ghana, were Raleigh had a strong foothold. They carried status, but also were indispensable to agricultural workers and transport, or to oil workers in the Nigerian delta. There was an assembly plant in Accra where bicycle parts constructed in Raleigh's factory in Nottingham were put together. In numerous local workshops bicycle repairs were carried out and local knowledge about adapting bicycles to transport demands was large.[22]

Advertisements targeting Nigeria are either in Yoruba or Hausa. In Ghana, besides English, we found advertisements in Twi and Nzema. Most of the pictures contain men, but some also depict women. Their clothing is typically West-African. For this region, we can distinguish three target

[18] Luning et al., "Tamale, Ghana: Bicycles Forever."
[19] Fofana and Togola, "Bamako, Mali: The Resourceful Bunch," 6.
[20] Courtright, "Kampala, Uganda: From Heart to Border—and Back"; Nyamai, "Nairobi, Kenya: A Return To Bicycles? The Politics and Possibilities of Cycling."
[21] Mwiba, "Mzuzu, Malawi: Pedal Power, Multiple Opportunities."
[22] Nwabughuogu, "The Role of Bicycle Transport in the Economic Development of Eastern Nigeria, 1930–45"; Madugu, "Kano, Nigeria: Raleigh Riches, Achaba Hustle"; Okonkwo, "Aba, Nigeria: Bicycles, Brotherhood, and Oil in the Delta"; Luning et al., "Tamale, Ghana: Bicycles Forever."

groups or advertisement strategies: farmers and merchants who may use the bicycle for work; fashionable city-dwellers; and sport cyclists.

Firstly, our archives contain several pictures showing regular bicycles, often with a modified rack enabling the cyclist to carry heavy loads, seemingly targeting tradespeople and farmers (see figures 1 and 2). In some advertisements the cyclist carries a few heavy sacks of agricultural produce, or a crate of chickens on their bicycle. In line with this, the texts of these advertisements stress the potential of the bicycle to ease the working life of farmers and merchants. Cycling is depicted as a less tiresome option than walking. It also saves time and enables him or her to earn more money. The cyclist is therefore often called ‘wise’, ‘smart’ or ‘intelligent’ in these advertisements.

Secondly, there is an advertisement for Raleigh’s sport bicycle, the Lenton. It was published in a Ghanaian newspaper in 1958. The same newspaper page contains reports on cycling races organized in Accra by Raleigh importer United Africa Company and Dunlop. It stands out among advertisements targeting any African country as the only one, or one of the few, marketing sports cycling. Indeed, it would be decades before any black African cyclist made it to the professional cycling peloton.

A third, and more important category, is formed by several advertisements that frame cycling as modern, suitable for both men and women, connecting them to European trends. One of the advertisements contains a young man wearing a graduation gown and hat who is depicted as being “progressive” and “up to date”. The other depicts a young woman wearing a dress, with a text that reads:

> Up-to-date women go by cycle. Every woman who leads a busy, active life needs a bicycle of her own. With a bicycle you're independent of public transport - and there are no fares to pay! Women all over the world ride bicycles, for business, visits to friends, shopping and pleasure trips. Cycling’s the modern fashion for the modern woman. You too should own a bicycle. [4-gloc - DSCN6440]

Note how the advertisement lays out a range of activities that can be done by bicycles in an attempt to create a market. It is also noteworthy how the advertisement depicts cycling as modern, something that is done 'all over the world' and any woman who wants to be fashionable therefore cannot do without a bicycle.

A variant on this advertisement, dated 1957-1958, written by or for the United Africa Company explicitly puts African cycling in comparison with practices elsewhere (see figure 3).[23] It is even more specific than the advertisement quoted above, and argues that the bicycle is a time and energy-saving device for working women, including "secretaries, nurses, teachers, welfare workers, journalists, shop assistants, government servants, [and] busy housewives". Next to this text, accompanied by an image of an African woman on a bicycle, are drawings of women with bicycles from the US, France, England, and the Netherlands. With stereotypical background imagery (the Eiffel tower, windmills, etc.) the text makes bold claims such as that in France "cycling is the national sport" and "women cyclists are seen everywhere", in the Netherlands "the bicycle is the most popular form of transport for women", and in England "many thousands of women use their bicycles daily to go to work, and for shopping." Interestingly, for the US the text reads that in "the most modern country in the world, girls ride bicycles at a very early age", suggesting that in Raleigh's view adult cycling was less common there than it was in Europe and was hopefully about to become in Africa.

At the time of writing, in the USA and Europe the car was becoming increasingly affordable and the bicycle was no longer regarded as the pinnacle of modernity. The discourse employed here is more reminiscent of the way cycling was marketed to women in the west around 1900. Perhaps the assumption of Raleigh was that African countries would go or had to go through the same 'stages' of development in mobility terms as a country like the UK had. It is clear from the advertisements (see e.g. figure 4) that cycling was contrasted with walking (slow and tiresome) and public transport (also slow and sometimes expensive) while no mention was made of individual car ownership at all. Instead, in this advertisement for instance, the word 'modern' was used a few times in connection with cycling.

[23] On the role of the United Africa Company in colonial commerce and exploitation, see Jackson et al., *Architecture, Empire, and Trade*.

Kenya and Uganda

In Kenya and Uganda, Indian merchants played a key role in establishing bicycle stores. Nthoki Nyamai points out that this enabled the spread of the bicycle outside of the control of the colonial bureaucracy, which had used bicycles as strategic gifts to establish alliances and create control.[24] There generally was a significant market for them. Interestingly, religion played a major role here. In Uganda for instance, bicycles were key for congregations to gather. As Tom Courtright notes: "By the 1930s, bicycles were crucial to the East African Revival, enabling evangelists to reach remote communities and link Christian movements across borders. Riding en masse, groups of cyclists journeyed from Uganda to Rwanda and to western Kenya for revival meetings," turning bicycles into "instruments not only of mobility but of spiritual transformation." [25] After independence though, the fate of bicycles in Kenya in particular declined. Jethron Akallah argues that Kenya adopted American-style car-based modernization and consumerism, in contrast to some African countries where more socialist-leaning governments promoted cycling and domestic cycling industries as alternatives to western-style consumerism (Nasser in Egypt, Nyerere in Tanzania, and Kaunda in Zambia).[26] While there was clearly a market for bicycles therefore, Raleigh operated in an uncertain landscape around 1960, making its marketing campaign an interesting case. The advertisements targeting Kenya are in Swahili or English, Ugandan advertisements use the Luganda language.

Two different advertisements for the Kenyan market were found in the archive, likely from around 1960. The first advertisement (see figure 5) depict a young man in neat blouse and shorts, smiling while fleeing for a charging lion, coming from the high grass in the back. The accompanying text reads in Swahili: "The only steel bicycle: The most famous bicycle in the world for speed, power, quality and reliability. Make sure you get the Raleigh. Made in the largest modern bicycle factory in the world." This text resembles other advertisements, emphasizing the quality and durability of the bicycle manufactured in a 'modern' (i.e. European) factory. The image, however, seems to represent the African man in flight, with the bicycle as a means of escape, portraying the man as

[24] Nyamai, "Nairobi, Kenya: A Return To Bicycles? The Politics and Possibilities of Cycling."
[25] Courtright, "Kampala, Uganda: From Heart to Border—and Back," 9. Cf. also Otim, "Gulu, Uganda: From Iron Donkeys to Bodabodas."
[26] Akallah, "Kisumu, Kenya: The Lakeside City of Cycling Persistence."

being at the mercy of nature – the lion in this case – rather than possessing control over his environment. European technology helps the man escaping this situation.

The second advertisement is in English and seems to be a copy of an advertisement used in India as well. The young boy standing alongside his racing bicycle, wears a neat school uniform with tie. He has (stereo)typical African facial features and black skin colour, like man and women in other advertisements for African markets. The accompanying text reads in English: “The joy of giving your boy his first bicycle is doubled when you give him the best - a Raleigh. This is the bicycle of supreme quality and value, unequalled in design, smartness, strength and durability. Choose wisely, give your boy a Raleigh, the all-steel bicycle.”

The four advertisements for the Ugandan market are without a date but look similar in style like the advertisements for other African markets from 1961-62. The first is a black and white advertisement (n.d.) for the Ugandan market by Raleigh and Raleigh-subsidiary Sturmey Archer – a Nottingham based manufacturer of bicycle gears. It depicts a man cycling with a heavy load on the luggage rack. As he looks over his right shoulder, smiling, he cycles away from the viewer. The cyclist is a young African man with a fresh haircut, wearing a blouse, shorts and sandals. The bicycle is described in Luganda as the “best carriage in the world”. Accompanying text, translated from Luganda: “The Raleigh bicycle is known for its strength and reliability. It has been around for ten thousand years [?] and is still popular today. Buy a Raleigh, a sturdy metal bicycle. It is made in a factory that produces bicycles with high quality in the world.” The bicycle is framed as a durable mode for effortlessly transporting goods. No social aspects of cycling are mentioned. (3-gloc/DSCN5722)

Another advertisement for the Ugandan market, in similar style as the one above, depicts an adult man, wearing a neat polo-shirt and pleated trousers with leather shoes, proudly standing next to and holding his bicycle. In the background his two sons and (likely) his wive are smiling towards the viewer – gendered, nuclear family? The accompanying text in Luganda reads: “Raleigh a carriage desired by everyone. Everyone admires the Raleigh, a bright clean that runs smoothly and quickly. Raleigh is a single cart that you can harvest and lasts for thousands of years. Choose Raleigh steel bicycle. It is manufactured in the largest modern carriage factory in the world.” The

text frames the bicycle as a durable, effortless mode of transport, that enables the male breadwinner to make a living for his family. The bicycle, in addition, is also presented as an object of admiration. (4-gloc/DSCN5721)

A third advertisement depicts an African woman twice, smiling and waving to the viewer while cycling. She wears a headscarf, dress and neat shoes. Accompanying text in Luganda: "Raleigh is a better carriage for women. For carrying produce or going to work, a wise woman rides a beautiful Raleigh carriage. Raleigh is famous for its strength and beauty and lasts for thousands of years. Buy Raleigh steel bicycle. It's manufactured in the world's largest modern carriage factory." In addition to its durability, here the bicycle is presented as the "better" mobility alternative for African women who wish to carry produce or travel to work – an alternative to what other mode is not mentioned. (4-gloc/DSCN5727)

A fourth advertisement shows the same African man in suit and tie – upper-class, seemingly in a white-collar job – twice; once cycling towards the viewer and once standing alongside his bicycle holding the Brooks saddle. The accompanying text reads: "A successful man wants the best bicycle money can buy. You choose the Raleigh, the best and most powerful ride in the world. Raleigh lasts for thousands of years and looks beautiful in the light all the time. Buy Raleigh steel bicycle. It is manufactured in the world's largest modern bicycle factory." (4-gloc/DSCN5728)

Southern Africa

Cycling played a big role in the everyday transport needs of Africans in Southern Africa. Fishermen in Malawi used the bicycle to transport fish over 30km from Chilwa lake to markets in Zomba.[27] Spread by colonial officials and, as in other African countries, missionaries, Malawi embraced the bicycle post-independence as a symbol of progress and modernity.[28] In South Africa, Apartheid urban planning often led to large travel distances for marginalized black communities, and the bicycle was a key solution in the absence of state-provided transportation options.[29] New, imported bicycles like those of Raleigh, were luxury goods though and in the 1950s and 1960s

[27] Drengk, "Zomba, Malawi: 'I Never Queued for Fuel—Ever.'"
[28] Mwiba, "Mzuzu, Malawi: Pedal Power, Multiple Opportunities."
[29] Motala et al., "Cape Town, South Africa: The Losing Race Across a Divided City"; Morgan, "Johannesburg, South Africa: Cycling Between Segregation and Freedom."

remained out of reach of many people. Often it was only later that bicycles became more affordable, such as through the creation of domestic bicycle industries in 1980s Zambia, or through a Mozambican program to exchange guns for bicycles after civil war.[30] As different as the trajectory of African cycling is from that of the Global North, these few examples also illustrate the huge differences between African countries: import substitution policies, political conflict, or racial policies all impacted the uptake of the bicycle.

The advertisements targeting Southern Africa (South Africa, Zambia, Zimbabwe, and Malawi) used various languages: English, Bemba, Nyanja/Chichewa, Shona, and Ndebele. There is one set of advertisements using the same image and text in all these languages:

> My Raleigh bicycle is smart, strong and reliable. It has a bright glossy finish that my friends admire. It runs smoothly and easily and will be my friend for life! To get the best value for your money YOU should buy a Raleigh.

Accompanying this text is a picture of a woman mounting a low-rise bicycle while a man watches her, smiling. As in every advertisement, the 'all-steel' construction of the bicycle was emphasized, and its durability and reliability are key marketing points in Raleigh's marketing globally. This text stands out for its claim that owning a Raleigh bicycle will allow its owner to impress their friends. Once again, the bicycle is depicted as a premier status symbol, at a time when this role had been taken over by the car in other countries.

Other regions

The Raleigh archives also contain some marketing material from Asia and South America. While not enough to form a representative sample, comparing these advertisements, as well as European ones found through other databases, allow us to put the African marketing campaign of Raleigh into a broader perspective.

[30] Kamuna and Chirwa, "Chipata, Zambia: Legacy, Bicycle Production, and Dedicated Lanes"; Mendiate and dos Santos Pelembe, "Maputo, Mozambique: Bicycles Not Guns."

Raleigh did not exclusively target (former) British colonies or limited itself to major African languages. We also encountered advertisements in French and Swahili aimed at Congo (DRC). These advertisements stressed the bicycle as a must-have status symbol indicating worldly success. Similarly, there are advertisements for Sudan (in Arabic), Lebanon (French), Burma (Burmese), India (Gujarati and English), Malaysia (English), Thailand (Thai), as well as Spanish advertisements for several South American countries (Colombia, Peru, Uruguay).

The message of these advertisements was like the African campaigns in linking the bicycle to modernity. One Indian advertisement (see figure 6) is particularly striking: it depicts a young Indian boy and girl, cycling in a landscape filled with other technological features of modernity: a tractor is ploughing a nearby field, electricity pylons litter the landscape, powered by a large hydropower dam in the background. The advertisement simply reads 'The Bicycles for Modern India'. In contrast, the South American advertisements we found did not stress the modernity of cycling but rather carried a more European message of cycling as exclusively a touring or sports activity. While the number of advertisements for Asia and South America is too small to generalize, it is noticeable that the tone is different in the case of Latin-American countries, possibly because they had higher levels of motorization compared to Asia and Africa at this moment in time.

European advertisements by Raleigh in this period have a clearly distinct character and do not emphasize the bicycle's modernity at all. Several advertisements in the British *Daily Mail* market Raleigh's Lenton Sports bicycle or portray cycling as a leisure activity in marketing the Raleigh Riviera, touted as the "world's finest tourist bicycle." Advertisements in Dutch newspapers for Raleigh products marketed utilitarian bicycles more, which is not surprising, as utilitarian cycling culture in the Netherlands persisted in the 1950s and 1960s in marked contrast to the UK. Visually, these advertisements portray bicycles, but rarely their users, as was common in African advertisements. The texts of the advertisements emphasize Raleigh's robustness and durability, fastness or comfort (in the case of sports or leisure bicycles) but not its modernity, commercial utility, or its trendiness and capacity to impress others.

3. Discussion

The Raleigh advertisements studied here often featured depictions of the bicycle as a symbol of progress, but in doing so, they also reinforced a subtle but powerful message about racial hierarchies. Colonial advertisements often featured a white, middle-class European man or woman riding the bicycle through colonial landscapes, with images of indigenous people either excluded or depicted as passive observers. This reinforced the stereotype that European technology and modernity were the exclusive domain of white, colonial subjects, while indigenous peoples were either not part of this narrative or were relegated to secondary roles. Thus, bicycles, like other commodities, became included in the everyday practice of empire by maintaining distinctions between the civilized colonial rulers and the subordinate colonized. The advertisements analysed here, published during a transitional period towards independence, use different strategies: they firmly foreground indigenous people, but the advertisements still contain more subtle racial hierarchies.

Raleigh's marketing materials of the late 1950s and early 1960s reveal an implicit developmental framework that positioned African markets as occupying an earlier stage in a presumed universal trajectory of technological progress. European advertisements in the same period emphasized bicycles' recreational qualities as sports or leisure vehicles mostly, or focused on bicycles as children's toys, reflecting cycling's displacement by automobiles as the symbol of modernity. Meanwhile, Raleigh's advertisements consistently foregrounded the bicycle's modern credentials and its value as a utilitarian transportation and workhorse device. This temporal displacement suggests that Raleigh's marketers operated with assumptions about differential stages of development, wherein African consumers were imagined as naturally aspiring to technologies that had already been superseded in Western contexts. The advertisements' emphasis on bicycles connecting African users to worldwide trends ('women all over the world ride bicycles') simultaneously promised inclusion in global modernity while implicitly positioning African markets as chronologically behind their Western counterparts. This staging of progress was not explicitly racialized in the advertisements' language, yet it embedded hierarchical assumptions.

The anthropologist Johannes Fabian has written about this 'temporal othering' and calls it the 'denial of coevalness'.[31]

Some of the advertisements nevertheless contain more openly racist messaging. The advertisements depicting a Black African man fleeing from a lion while riding a bicycle, construct a colonial narrative that positions the African subject in a subordinate, fearful position. The depiction of the Black African in flight, with the bicycle as a means of escape, evokes colonial stereotypes of the 'primitive' African, who is portrayed as being at the mercy of nature – or animals, such as the lion – rather than possessing control over his environment. This is an example of how a representation of mobility technology (like a bicycle) reinforces colonial power dynamics by positioning colonized subjects as defensive, unable to control their surroundings or assert their independence in the way the colonizer could.

For its (colonial) audience, images like the man fleeing by bicycle for a charging lion underscores the idea of African inferiority, suggesting that the native is vulnerable, driven by instinct, and governed by fear; and reinforces European 'superiority', symbolizing the bicycle as a tool of advancement and modernity, contrasting the image of the 'primitive' African who is overwhelmed by nature with the European colonizer, who would be represented as in control of both technology and the natural world. Through this lens, this marketing image not only promotes a product but also reinforces the intimate yet unequal relationships between the colonizer and the colonized, reinforcing the racialized hierarchies that underpinned the colonial project.

The timing of the advertising campaign at the threshold of independence of many African countries is interesting. There is evidence that this was a conscious choice. In Ghana and Nigeria, the Kingsway department stores, part of the United Africa Company, expanded its stores. According to Iain Jackson et al., this was meant "to telegraph a commitment to the emerging post-colonial regimes, and also to capitalize on the nations' 'euphoric' excitement and optimism that so often bolstered sales and economic activity."[32] One of the advertisements for these stories employs the same formatting and typography as the Raleigh advertisements analysed here, suggesting they

[31] Fabian, *Time and the Other*.
[32] Jackson et al., *Architecture, Empire, and Trade*, 370.

formed part of a bigger effort to profit from the moment of independence to sell western consumer goods.[33]

In short, the ads confirm Decker's observation that British firms adjusted their marketing to the new, post-independence context by adopting images and narratives of development and modernity. Raleigh adopted a similar strategy in this period. Mari's claims that in bicycle marketing there is a market segmentation based on gender, age, usage, price sensitivity and anthropometric measures is somewhat nuanced by our findings. In Africa, Raleigh also included other variables in their ads: family life, modernity etc. Based on the advertisements analysed here, it is clear that Raleigh had a differentiated marketing strategy where the messaging around bicycles was adjusted to Raleigh's marketeers' perceptions of the state of development of countries: where the car had largely replaced the bicycle in utilitarian functions, cycling was strictly marketed as a sports, leisure, or children's activity. In African contexts however, these user groups were not targeted at all, and Raleigh attempted to sell the bicycle as a suitable vehicle for newly independent Africans.

4. Conclusion

Raleigh's advertisements were more than merely commercial tools to sell bicycles. They perpetuated imperial ideologies about racial superiority, technological advancement, and civilizational progress. At a time when the car had replaced the bicycle as the symbol of modernity in western countries, Raleigh emphasized the innovativeness of its bicycles. Raleigh's African marketing campaigns illustrate how the same technology might be on different timelines in different places. Bicycles had long been displaced by automobiles as symbols of modernity in Western markets by the 1950s and were often actively marginalized from transport planning. At the same time, they were being marketed as cutting-edge technology in African contexts. The same arguments used to market cars in the West were used to market bicycles in Africa: they were timesaving and therefore money-saving machines, that increased comfort levels for its users.

[33] Jackson et al., *Architecture, Empire, and Trade*; the image is reproduced on page 364. See also advertisements by the UAC on pages 418 and 419.

Raleigh strategically exploited the uneven development of global mobility systems, positioning bicycles as the pinnacle of modern transportation in markets where car ownership remained largely inaccessible. The advertisements' emphasis on bicycles as modern, progressive, and connecting users to global trends masked the reality that these same objects had already been relegated to utilitarian or recreational roles in Western societies. Colonial and post-colonial markets became repositories for technologies that had lost their status as modern in metropolitan centres. Glocalization created a hierarchy of technological modernity that reinforced global inequalities even as it promised inclusion in worldwide trends.

In the historical context of decolonization processes, Raleigh's advertising strategies demonstrate how commercial practices maintained colonial ideologies through subtler means. Except for one advertisement, most did not employ explicitly racist tropes. However, we can observe a more subtle shift from explicit imperial rhetoric to a development discourse that portrays African countries implicitly as backward and in an earlier stage of mobility development. Additionally, the message was that without superior western technology, it was impossible to overcome this, and we can thus see Raleigh's strategies as part of a wider economic neo-imperial current.

The history of bicycle marketing in Africa therefore presents us with a different timeline for mobility adaptation. The linear narrative in the Global North, where cycling is largely replaced by the introduction of automobility, especially in cultural representations if not entirely in practice, does not hold in Africa. Emerging histories of African cycling in the 1950s and 1960s show that there was a mixture of messages and a Raleigh importer like the United Africa Company also imported and marketed cars. Both were portrayed as modern and desirable consumer goods at the same time, something that did not occur in a European or American context.

The history of African cycling is only beginning to be documented. This article also points to the need for multi-perspectival approaches to global marketing history. While the corporate archives analysed here reveal strategic thinking, incorporating local responses and alternative sources would provide a more complete understanding of how these messages were received and contested. After all, as Breckenridge and Appadurai have noted, "the consumers of mass-mediated cultural

forms are agents and actors, not merely objects and recipients."[34] Did African buyers accept these narratives of technological hierarchy, or did they develop alternative meanings for bicycle ownership that subverted colonial frameworks? Emergent research on the tinkering and 'bikesmithing' in Africa shows that imported bicycles were not always adapted to local needs.[35]

In conclusion, this article highlights a significant gap in both cycling history and marketing studies, which have largely ignored non-Western markets. This omission has obscured important insights about how consumer capitalism intersected with (post-)colonial projects. Using mobility justice and colonial studies perspectives can illuminate corporate marketing histories. Understanding these historical patterns of bicycle marketing help explain current challenges in promoting cycling infrastructure in formerly colonized regions, where sustainable mobility advocacy must contend with inherited associations between bicycles and developmental inadequacy.

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[34] Breckenridge and Appadurai, "Public Modernity in India," 3.
[35] Drengk, "Zomba, Malawi: 'I Never Queued for Fuel—Ever.'" See also Hahn, "The Appropriation of Bicycles in West Africa."

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Images

Figure 1 Advertisements from Nigeria depicting a man and a woman carrying farm products and chickens on their bicycle. [DSCN6063, map 3-gloc]

Figure 2 Advertisements from Nigeria depicting a man and a woman carrying farm products and chickens on their bicycle. [DSCN6062, map 3-gloc]

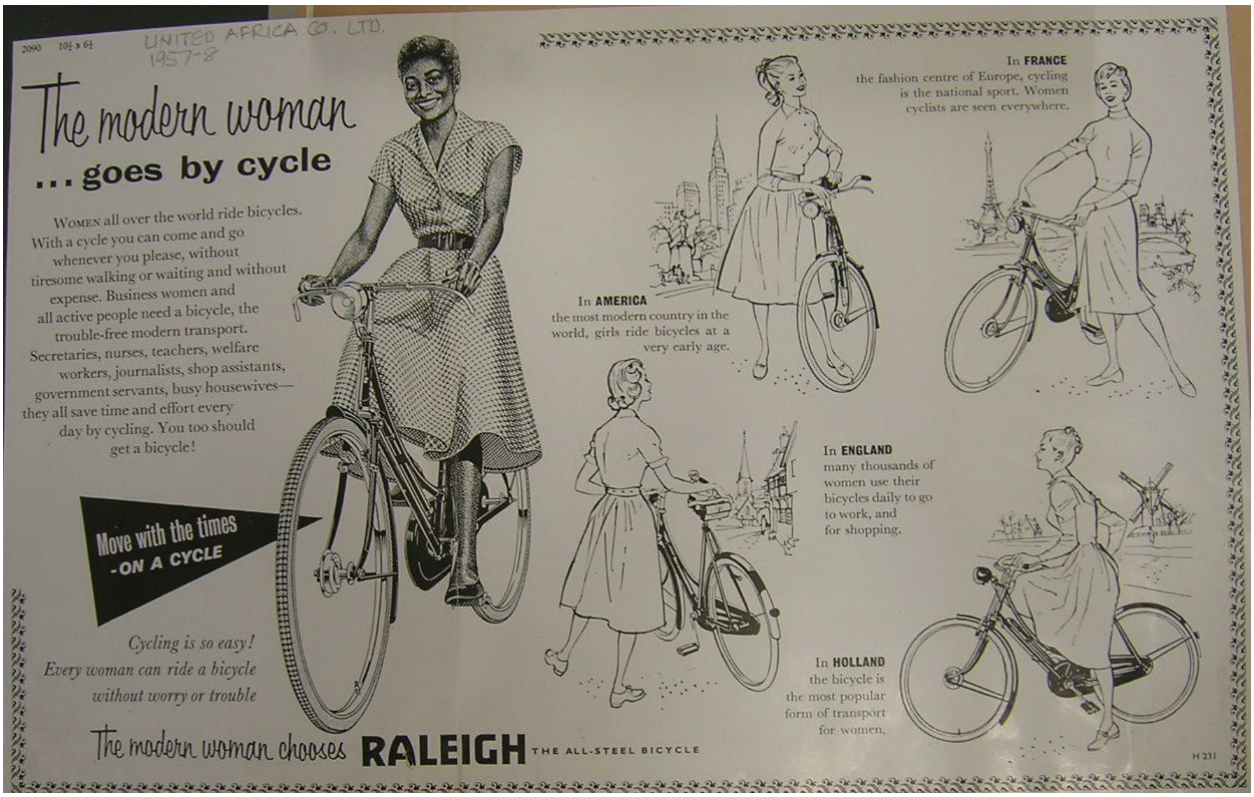

Figure 3 Advertising the bicycle as the pinnacle of modernity for women… [DSCN6053, map 4-gloc]

Figure 4 … and advertising the bicycle as the pinnacle of modernity for men [DSCN6054, map 4-gloc]

Figure 5 A Swahili advertisement targeting British East Africa depiciting an African boy being chased by a lion [DSCN5720, map 5-gloc]

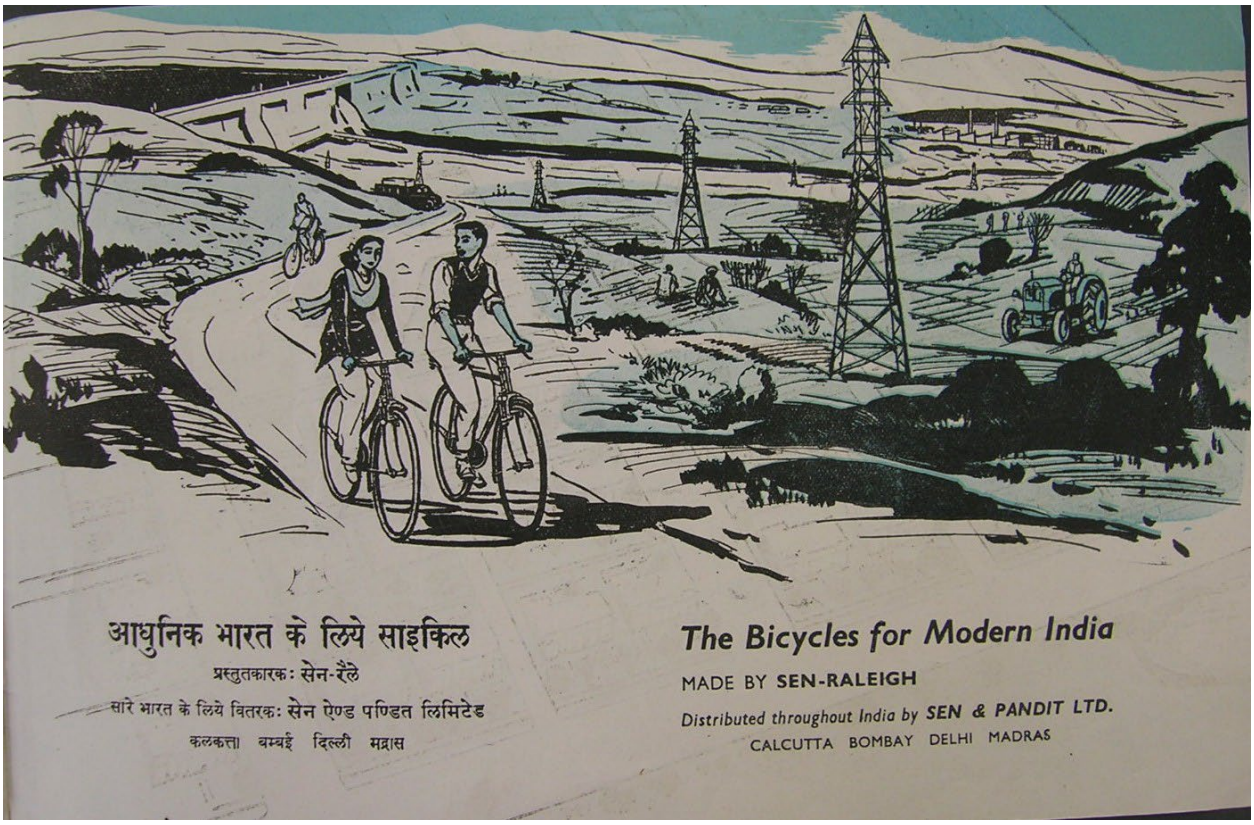

Figure 6 A Raleigh advertisement targeting the Indian market, visually linking the bicycle to tractors, hydropower dams, and electrification. While motorization is present in the form of a tractor, individual transport is done by bicycle and not by car [DSCN6633, map 5-gloc]

The Iron Cage of Modernity: Three Perspectives on the Hegemony of Automobility

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Abstract
With over 100 billion vehicle kilometres travelled annually, more than 19 million parking spaces, and the highest car density in Europe, the car plays a central role in the Dutch landscape. This dominance extends even further in many other West-European and Anglo-Saxon countries, where the car's cultural, social, and physical influence is even stronger. Where does this global hegemony of the car come from? In this contribution to the annual T2M conference, I explore the car's dominance through three perspectives, drawing on various explanations, paradigms, and worldviews.

The first perspective is instrumental: the car is seen primarily as a practical tool, adapting effortlessly to our sometimes unpredictable travel needs. In this view, we, as rational individuals, make our own choices and gravitate toward the car due to its convenience and utility. Here, the hegemony of the car is the aggregate of individual preferences and decisions.

The second perspective emphasizes the emotional and social aspects of car ownership. Desire for the car is not innate but constructed through social influence. The car serves as a symbol of upward mobility, social distinction, or conformity. It's more than just a means of transport—it becomes a marker of personal identity and societal status. The dominance of the car reflects the values and norms of society itself, where owning and driving a car can signify success, independence, and modernity.

The third perspective shifts focus to existing structures, often hierarchical in nature and power loaded. In this view, technology does not simply serve human needs; rather, human action is shaped and controlled by technology. The hegemony of the car becomes apparent in how it permeates our language (e.g., "alternative modes"), our built environment, and the interests of powerful industries (big oil, automotive, construction) and political-economy. In its most deterministic form, the individual is reduced to a passive spectator in this technological ecosystem.

The dominance of the car presents numerous societal challenges, from oil dependence to atomic individualism. Proposed solutions often align with one of three perspectives: for example, promoting road pricing (I), reducing fossil energy advertisements (II), or pushing for a fundamental shift away from car dependency (III). Beyond these perspectives, there lies potential to build a coalition of the willing, fostering a collaborative approach to rethink our transportation future.

1. The hegemony of the car

The car occupies a central role in the mobility system in the Netherlands. For example, the Netherlands has had more cars than households since 2007. Within Europe, the only country with more cars per square kilometre is the densely populated island of Malta. About half of all trips in the Netherlands is by car. And almost three quarters of the distance travelled is covered by car (KiM, 2020)[1]. Meanwhile, the Netherlands is known as a country of cyclists. Indeed, multiple other countries in the advanced capitalist world have higher levels of car ownership per capita.

Where does this hegemony comes from? Why is it the car has such a dominant position in our world? The answer to this question differs, depending on who is allowed to provide an answer. These answers are illustrative for perceptions on human behaviour and our worldview. It tell us about the paradigms and discourses within which commentators operate. The answer is also informative for certain solutions that are proposed, when we look for ways to mitigate the prominent role of the car. As strong problem-solution constructions are present.

Ideas about the dominance of the car can, I argue, be reduced to three perspectives, namely: an instrumental and individualistic perspective, a socio-psychological perspective and a structural perspective. The perspectives can complement each other on fronts, it does not have to bite, but in the discourse the difference of insight is often emphasized. The three perspectives are central to this contribution.

2. Perspective I: The rational individual chooses the car

Widespread car ownership and its intensive usage can be explained by the added value of this instrument for the individual. The emphasis in this perspective is on the functional or instrumental application of the car as a vehicle: the car offers convenience, enjoyment and benefits. People make a rational assessment of car ownership, based on a kind of personal cost-benefit analysis. Simply because of the many advantages that the car has to offer, the trade-off results in favour of the car. This is how I would summarize the first perspective.

Of course, we do know that people do not always and everywhere act completely rationally, as people in perspective I are willing to admit. Reference is therefore made to the way in which car ownership distorts the choice between the modalities. People do not account for the full cost for the car or have distorted images of this. In the choice models, the possibility of making the 'wrong choice' is accounted for by including an error term in the model specification. Insiders are talking about 'bounded rationality', 'suboptimal choices', 'regret minimization' or alike. Certain habits, like taking the car for every single trip, are not in every situation rational, though at the same time habits themselves are rational, as they reduce the burden of making a choice every single time.

[1] For convenience, we only charge with the daily ground-based means of transport. For example, when we include flights in the calculation, the share of the car in the total distance travelled decreases to 54%. For both statistics, we work with the figures for 2019, in order to exclude COVID-19 bias.

What all these well-known nuances have in common is that the rational actor is still at the core. No longer deterministic, but stochastic. In the end, this hardly matters as people might underestimate the cost of driving and overestimate the cost of driving.

The hegemony of the car in today's society is then the sum of all these individual preferences and choices (Walks, 2015). It is the image that arises at an aggregate level, where society consists of nothing but individuals.[2]

Suggestions to mitigate the dominance of the car follow the same logic: make travel alternatives more attractive (e.g. fast cycling routes and discounts on train tickets) or – though less popular - make the car less attractive. 'Incentives' are the key word here. I explain this perspective further by taking a brief look at the main reasoning.

2.1 A Swiss army knife

The car lends itself to a wide range of applications. It is known as a General Purpose Technology. This includes transport over short or long distances, with one or more passengers, during the day or at night. Many in-car options are available to smooth the ride: navigation, music, video and climate control. With a wide range of cars on the market there are options for everyone: from small city cars to vans, SUVs and pick-up trucks. There are also many add-ons available, like trailers, caravans and roof box.

For many other modes of transport, it is difficult to 'compete' with the car (as a richly equipped Swiss army knife). With the bike, the range is limited by the physical endurance of the rider. The same can actually be said for the possibilities for luggage or fellow passengers on the bike. In addition, the bike is directly exposed to weather and wind. On foot, many of the same restrictions apply as with the bicycle and perhaps more powerful: Motorised two-wheelers - such as mopeds, scooters or motorbikes - do not depend on muscle strength and are therefore much less sensitive to endurance. The exposure to weather and wind, and restrictions on the car in terms of luggage and additions to the vehicle, do apply to a lesser extent.

2.2 Time and money

For our transport choices, 'the generalised transport costs' are actually all one needs to know according to perspective I. The main components (and often only components) of these generalised costs are time and money. To combine these ingredients time is mostly converted to money. This monetarisation is done via the value-of-travel time. Especially speed-wise the car performs well compared to the travel alternatives. Hence, its dominates.

For many of the trips we make every day, the car is the fastest option. This is also evident from the comparisons we made on the basis of the Mobility Panel Netherlands. For the journeys made (approximately 40,000) by our panellists, we see that the car is usually 1.5 times faster than a journey by bicycle and almost 3 times faster than the

[2]The term "society" in this context is often an uncomfortable word, the existence of which is even explicitly called into question.

same journey by public transport. The latter is due to the unfavourable competitive position of the PT at the dominant shorter distances. However, even at distances of 10, 30 or 50 km, the car is often twice as fast as the public transport (Bakker & Zwaneveld, 2009).

Table 1: Comparison of travel times by car with respect to bicycle or public transport, based on a random sample of daily movements. Dates: MPN and Google Maps (API).

	Car - Bicycle	**Car – public transport**
Year	2019	2019
Displacements (obs.)	41.673	41.673
Distance by car (median)	3,68	3,68
Travel time ratio (median)	1,44	2,75
Travel time car is shorter	71%	98%
Travel time is the same	6%	1%
Travel time car is longer	24%	2%

Also, in terms of costs, the car (always) scores better. When we look at the past few decades, we see that the costs of purchasing a car are structurally falling. Year-on-year, the part of households' disposable income directed to the car is smaller (Witte et al., 2022). Operating costs are also reduced, as the same category of vehicles has an improved fuel efficiency, at the same time prices at the pump have been constant, with the exception of the recent price increase in 2022. The development of the total cost of the car is therefore relatively favourable for the motorist, especially compared to train and bus (Witte et al., 2022).

2.3 The option value of the car

The benefits the individual derives from the car are wider than the vehicle-in-use. The car often functions as a second living room and offers an opportunity to retreat, with all the comforts that can also be found at home, such as music, video, reading lamps, make-up mirrors and more. The car also offers space for intimacy. Next to home, the car is the most popular place for sexual interaction.

In particular, the option value – the idea that the vehicle is ready for use at any time – is an important addition to the actual use of the vehicle. The car can fulfil this role thanks to instant availability, usually completed via exclusive access to the car, ready for departure, in the vicinity of the (residential) location.

The proximity of the car to the driver is guaranteed with more than 19 million parking spaces in the Netherlands. 60% of motorists can park within 10 meters of the front door (figure 1). The average distance between the front door and the parked car is estimated at 21 meters. In this way, we have made the car a door-to-door means of transport.

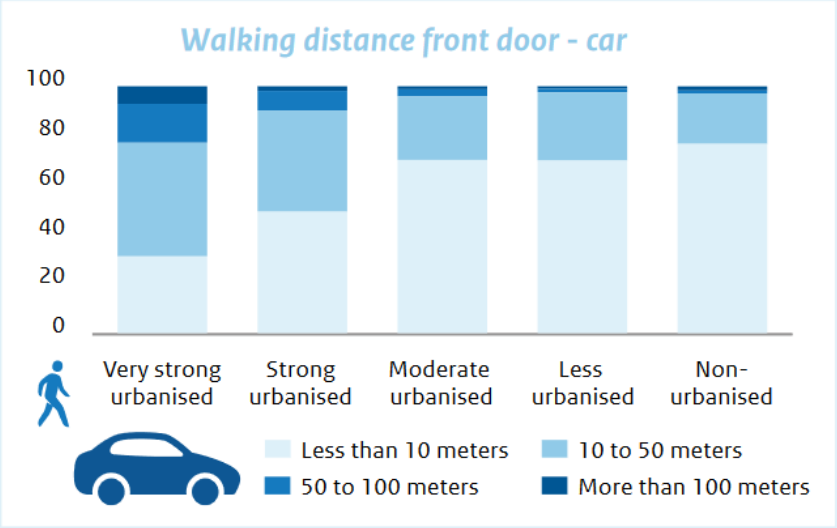

Figure 1: Relationship between urbanization and walking distance to the parked car

The exclusive access to the car is especially true for the privately owned car. In recent decades, we have seen a partial development from the family car to each its own car, with which the car has only become more dominant in the streetscape and the traffic picture. Meanwhile, a quarter of Dutch households have 2 cars or more.

A recent study concludes that up to half of the value people attach to the car is not related to its use as a vehicle (Moody et al., 2021). For this half, the researchers point to the option value of the own car offers and the symbolic value. While the option value fits within perspective I, the symbolic role of the car brings us to the second perspective.

3. Perspective II: People are social animals

Representatives of the second perspective regularly oppose dominant functional-instrumental approach. They stress this is simply too short-sighted. Among other things, the supporters of the second perspective reject the rationality of individuals as atomic decision makers. Humans are not autonomous running calculators with autonomous needs, but are malleable, influenceable and strongly guided by the behaviour of others (Litman, 2009; Gorz, 1973). Humans are social animals, as the second perspective underlines.

The car is loaded with meaning for the owner and for others (Steg, 2005; Wijman, 2011). The car actively contributes to the image and appearance, while other modalities – such as the bus – do not benefit from this positive image. People conform to the applicable social norms. The stronger the norm, the stronger the conformism. Ironically, the standard exists only by the grace of conforming to the standard. There is therefore a self-reinforcing effect going on. The hegemony of the car stems mainly from this herd behaviour in which the car has now central.

3.1 The social norm

The existence of the descriptive norm[3] regarding the car is particularly powerful. Not only are there 9 million moving and stationary vehicles in the Netherlands to contribute to this norm. There is also an entire physical system around it (Rollin & Bamberg, 2020; Verkade & Te Brömmelstroet, 2020). Just think of the 19 million parking spaces, millions of road signs, 3000 petrol stations, 130,000 km of roads, 50 thousand car garages, half a million caravans, 8 thousand driving schools, frequent traffic jams on radio and TV, advertisements for free "P", imagery and more. The car's massive visibility conveys the implicit message that 'normal people' use the car.

Numerous studies have shown the importance of descriptive social norms (Cialdini, 2003; Goldstein et al., 2008; Ariely, 2010), also in the field of transport and mobility (Abou-Zeid et al., 2013). Commuters copy the mode of transport of other commuters (Dugundji & Gulyás, 2012; Kormos et al., 2015). Commuters are more likely to pick up the car when other commuters do too (Steg, 2005). Conversely, more sustainable choices in traffic also lead to more sustainable choices in traffic (Kormos et al., 2015). The behaviour of colleagues and others also plays a role in teleworking (Scott et al., 2012). Students who notice that other students take the bus more often are also more likely to take the bus themselves (Heath & Gifford, 2002). More cyclists in Rome lead to more cyclists in Rome (Passafaro et al., 2014).

Having or buying a car does not require any explanation in one's social network in modern society. On the other hand, if you do not have a car explanations or motivations are needed. One might even feel the need to explain, without questions asked. Hence, the car becomes more than a bundling of functional aspects (see perspective I), and acquires meaning in social traffic (Steg, 2005; Seiler, 2009; Litman, 2009).

People with a car are perceived as being flexible, modern, self-reliant, autonomous, prosperous, and so on. In its social context driving equals freedom, adventure and independence. (Although it might be experienced as stressful). It should be noted that many of the associations linked to the car match perfectly with the personal characteristics that are of paramount importance in today's society (Seiler, 2009; Rajan, 2006; Walks, 2015a). In this way, the car is also prescribed by society. The car becomes a prescriptive standard.

In line with this, we see that further nuances can be added when choosing the type of car (Gössling, 2018; Wijman, 2011). A Volvo for the good father who wants to take care of his family with a sufficiently spacious, safe and comfortable family car. A BMW for the fast-paced commercial boy. A Prius or electric car for people who want a green look. Car manufacturers have deliberately designed ranks and positions in the models and types of vehicles (Gartman, 2004), with corresponding pricing, to match the social dynamics and structures.

[3] The social norm can be set out in the descriptive and prescriptive norm. Descriptive standards can be observed in society. Simply by looking at what others are doing. The prescriptive norms are more about what people should do, to belong to a certain class.

3.2 Participate in the consumer society

Of course, the car hasn't always been normal. The first half century of the car was possession of it exceptional. Even in the post-war period, there were few cars in the Netherlands (Van der Vinne, 2007). Initially, the mere possession of a car was enough to distinguish social traffic. As car ownership grew and became more normal, the distinctive character of the property itself declined and brand, type, model and price tag became more important (Gartman, 2004; Litman, 2009) and came on top of whether or not to have a car.

An important contribution of the car as a status object lies in its visibility. Already in the 19th century Veblen suggested that visibility is the key when it comes to the consumption of luxury goods and making distinctions. Because you can take the car with you, this aspect is only reinforced. The rise of the SUV over the past two decades is also linked to the ostentatiousness of large vehicles.

The relevance of social movement is also evident in our study (Witte et al., 2022; Figure 2). In the model for explaining car ownership at the household level, we see that the prescriptive social norm has the highest explanatory power of all included variables. The difference in the extent to which the standard of car ownership is endorsed therefore better explains the differences in car ownership than, for example, urbanity, ecological awareness or the presence of children in the household. Of course, the causal relationship can also go the other way, from car ownership to adherence to the norm. We are probably dealing with a reciprocal process here.

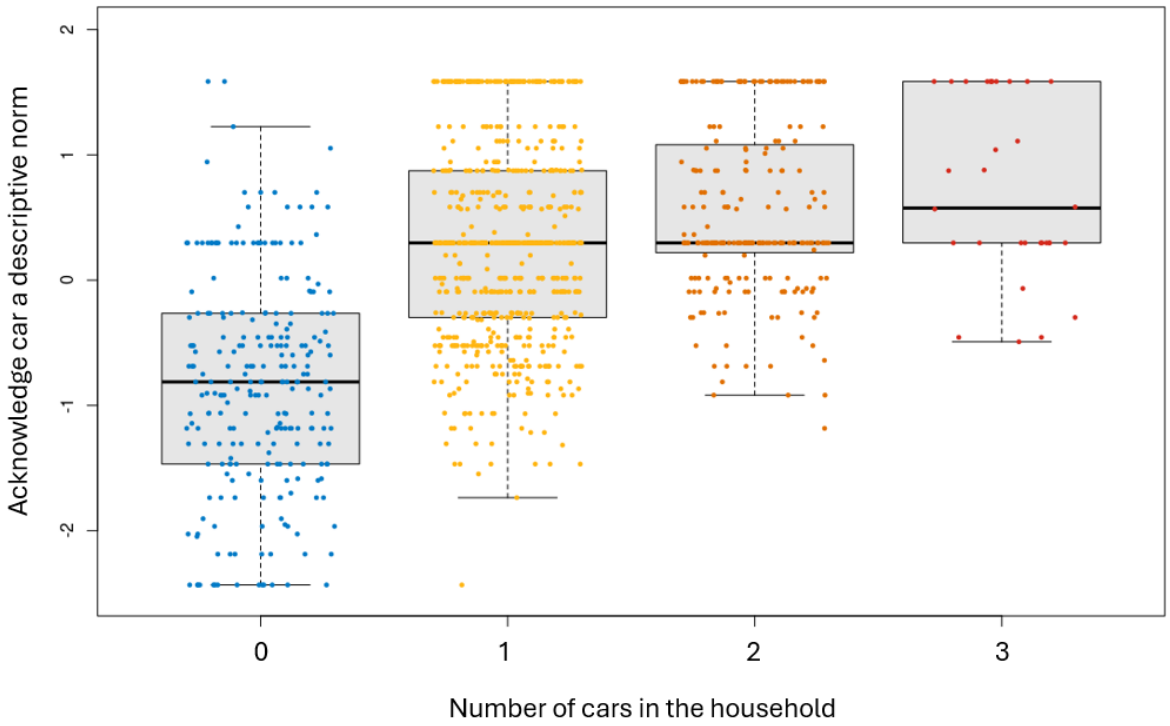

Figure 2: Relationship between the number of cars in the household and the prescriptive social norm of car ownership

Social norms can also indirectly affect car ownership. Since the 1920s, 'the American Dream' has been reconstructed via marketing and promotion (Goodwin et al., 2013;

Otchere–Darko & Atuahene, 2015) towards a materialistic ideal with a large, detached house, a beautiful kitchen and more and more things (fridge, microwave, radio, television, lawnmower). In the 1960s and 1970s, the Netherlands underwent the transformation into a consumer society. Many of the things mentioned are now standard for the majority of the population, as well as an annual holiday and fun outings with the family (Furlough, 1998). Good parents treat the children to visits to the amusement park, the beach, and the holiday park with swimming pool. Parents drive the children safely to parties, school and the football club (Lutz & Lutz-Fernandez, 2010). A car holiday is no longer a luxury but is rather seen as a well-deserved right. As a result, one needs a car to meet other social norms.

3.3 The undeniable role of the industry

In numerous ways, marketing activities from the automotive sector can be linked to the various sociopsychological factors that are central to this perspective. Via luxury, exclusivity and extremely high prices can be appealed to the status value of the car (Wijman, 2012; Litman, 2009; Gorz, 1973). Through product placement in TV series and films, the everydayness and the widely represented car can be emphasized, which confirms the car as a descriptive standard. In advertisements with slogans or texts, copywriters can also encourage the establishment or strengthening of a prescriptive standard. Through the images of the wilderness, adventure in the unknown, the sporty or the tough, associations and affective matters can be tapped into (McLean, 2009; Ribout 2012).

The automotive industry spends a lot of money on advertising. According to some sources, the automotive industry is even the largest sector (Conley, 2009). In the advertising world, the car commercial was also considered the highest attainable for a long time (Ogivly, 1984). In 2018, the automotive industry spent nearly $50 billion on advertising (Zenith, 2019).

A high content of 'soft sell' is typical of today's car advertisements, with which the desire must be stimulated (Schreurs, 2012). Instead of 'hard' data on estimated lifespan, price or luggage space, landscapes are projected in which the car glides smoothly through curves and rolls through the hills (Ribout, 2012; Schreurs, 2012).

The automotive sector also uses the route via Hollywood. They keep the 'American dream' alive (point 3.2). The car often contributes to the profile and character of the protagonist. In this context, there is also talk of 'carnography'. In almost all cases, *product placement* is used (Bensinger, 2008). A recent analysis of product placement in 100 of the most popular films from 2019 indicates that car brands are strongly represented. Out of the 100 most-recorded brands in movies, 33 of them are car brands. Ford, Chevrolet, Audi and Cadillac dominate in the top of the list. The Ford logo was featured in 76 of the 100 most popular films (Concave, 2020b). In 84% of the cases, the car was linked to a man. The total value for Hollywood of product placement is estimated at 534 million euro (Concave, 2020a).

Sluymer (2003) reveals the practices of the automotive sector towards car journalists. These journalists were overloaded with free cars, corporate gifts, prostitutes, holidays,

drinks and drugs in exchange for positive stories about new models entering the market. The result is harmless, according to this insider. After all, manufacturers make good reliable cars nowadays, so it does not matter which car you finally choose. An argument that ignores the practices on a more fundamental level, namely whether to buy a car in the first place.

Ribout (2012) concludes that marketing from the sector plays a not to be underestimated role in the way the general public looks at traffic and transport. Marketing strengthens the position of the car, through images and messages that underline that the good life presupposes a car. In this way, the marketing from the automotive industry creates, controls and strengthens the value of the car consumption culture.

4. Perspective III: Automobile dependency

According to Perspective I, people choose the car because of its functional value. In Perspective II, people choose the car because of its symbolic value and to keep up with the family Jones next door. The third perspective calls into question the true freedom to make choices. One has to join or lose in advance.[4] We are trapped in certain structures that determine what is possible and impossible. All kinds of decisions made in the past, current spatial planning practices, vested interests, power and powerlessness all enter the scene in perspective III.

Perspective III questions the voluntaristic nature of technology, which is central to Perspective I. The idea that the car is here to serve us, is turned upside down, humans now serve the interest of the car (Urry, 2004). Indeed, the car created the conditions for its own success ('autopoiesis'). And we are now in a path-dependent situation where the ownership and usage of the car seems to be rational and logical.

In the past 150 years we reshaped, restructured, and rebuilt the world according to 'the needs of the car'. At the same time, it's not evident what these needs actually are. These needs are socially constructed and sometimes heavily debated. All kind of benefits, features and characteristics we nowadays link to the car are not embedded in the technology of the car itself but were socially attached along the way.

The physical landscape is remade to make room for cars and designing in order to make the car a vehicle able to move from door-to-door. Other road users needed to be removed in order to guarantee its efficiency. We – as car owners - are revolting against measures to curb car traffic (Paterson, 2007). We alert our children the danger that lingers in the streets and label public space as a traffic area. We support the production and maintenance of the machines with research, subsidies or free land. We install solar panels to satisfy the hunger of the electric version. We work extra hard in order to pay for the car (Illich, 1976; Walks, 2015).

[4] Zhang (2006) refers to 'transport choices without an alternative'. Soron (2008) refers to 'compulsive consumption'. Oosterling (2000) deals with 'radical mediocrity'. Dawson (2011) talks about choosing the car with a gun on your sleep. Car companies are saved because they are 'too big to fail'. And so on.

4.1 A day without

A powerful and well-known example of the interaction between man and technology is the vicious circle of car dependence, where an increase in car ownership indirectly leads to an increase in car ownership. Interestingly, this circle was originally called 'the magic circle', when discovered by the road construction industry nearly 100 years ago (Dupuy, 1999).

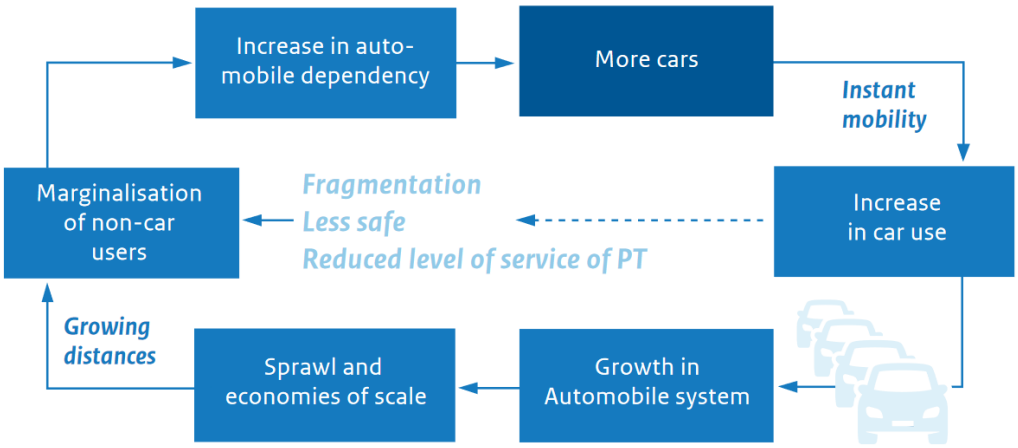

Figure 3: The vicious circle of auto-dependence.

The principle of the vicious circle is as follows. Car ownership is an impetus for car use. Once the car is in front of the door (as a sunk investment or fixed cost), other travel options, which are often paid per trip, become relatively expensive. Growing car ownership coincides with a growing automobile system: wider roads, more parking spaces, new petrol stations or charging stations, driving instructors, garages, navigation or road side information and more. The car system facilitates new patterns of production, living, working and recreation. This triggers processes such as sprawl and economies of scale. With an increase in fast motorised traffic, other road users are being oppressed: For example, cyclists are no longer safe and an inverse Mohring effect starts to dismantle public transport system and other collective transport options[5]. The fast car turns other road users into 'slow traffic'. The dependence on the car increases. A greater dependence also leads to more car ownership.

In their very extensive study on the history of mobility in the Netherlands – bundled in two voluminous books – Mom and Filarski come to the conclusion that the dominance of the car is not accidental, but has been carefully constructed. The idea that the car *automatically* creates the conditions for its own expansion, as the autopoiesis thesis from Urry might suggest, ignores active steering, power and regimes in favour of the car (Zijlstra & Avelino, 2010; Planka.nu, 2018; Baeten et al., 2000; Mitchell, 2013). The vicious circle can only manifest itself when certain conditions are met, such as wide shared belief in the future of the car.

[5] This not only concerns the absolute number of passengers, but also, for example, the willingness to pay. If the wealthy are more likely to make the switch to individual motorized traffic, a relatively larger proportion of their turnover will disappear.

One of the outcomes of the vicious cycle is *forced car ownership.* People who are unable to pay for car ownership are forced to do so, because they simply lack alternatives (Mattioli, 2017; Walks, 2015c; Fol et al., 2007). Approximately 5.5% of the Dutch households do have a car, but do not have sufficient resources for this (Zijlstra et al., 2022a). As a result, basic needs such a clothing, food and housing are under pressure. In line with this, we see that another 1 million Dutch people have a *fear-of-driving*. A large part of them, nevertheless, get behind the wheel (Witte et al., 2022).

4.2 Towards a broader understanding of auto-dependence

Not only are there people depending on the car in order to participate in society, society itself can also depend heavily on the car. An excellent example of this is the economic dependence on the car. We then no longer look at the car as a vehicle, but a one of the most important items of consumption, we see a complex high-tech industrial product, with huge supply chains and many related jobs (Dawson, 2011; Soron, 2009).

The automotive industry is an internationally important sector (Zijlstra et al., 2022a). Millions of vehicles are produced. Billions of dollars flow through the economy. Millions of people work in this sector. The well-known images often focus on assembly, but it is estimated that 80% of employment can be found in the supply industry[6]. In 1970, 22 of the 50 largest companies in the world were directly connected to the car, as a manufacturer, supplier of parts or through oil extraction. 50 years later, in 2019, 17 of the 50 largest companies in the world are still connected to the car. Even if we see a decrease from 22 to 17, that does not mean that the importance of the car for the global economy has diminished, because in recent decades we have seen a strong concentration of power at the top: The big players are getting bigger and now account for a much larger part of the entire global economy.

Partly because of its economic importance, the links between governments and the automotive industry are often close and deep-rooted. And that especially in the large car countries, such as the US, Germany, France, Italy. Almost all car brands are (or have been) part of the government. For example, the Land of Lower Saxony is a major shareholder of VW[7]. We also see a carousel in which people in prominent positions within politics and the automotive industry exchange seats. Especially in Brussels – with the EU – the big established names are finding their way around, thanks in part to numerous lobbyists.

The consequences of the close ties and interdependencies are difficult to fully understand, but the contours are clear. Thousands of lives could have been saved if the resistance to safety measures in and around the car had been less large and successful

[6] In the Netherlands, the assembly is modest, with NedCar as the only notable player. The supply industry is clearly of greater economic impact, with players such as TomTom, NXP, Inalfa, Tata and Akzo Nobel. The activities of the big names in the Netherlands – such as Toyota, Volkswagen, Daimler, Ford, Honda, Mitsubishi, BMW, Hyundai, Chrysler – are motivated by tax reasons and do not differ much from the motives of Apple or Walmart (Smits, 2022).

[7] The Land, as a major shareholder under the old Volkswagen Act of 1960 (VW-Gesetz), had a veto right on important decisions at the car manufacturer, but that has now been adjusted under pressure from Porsche and the EU. Lower Saxony's share has been reduced from more than 20% to around 12%.

(Luger, 2009; Lemov, 2015). The established names in the industry have built up a track record of successful resistance to environment or climate action (Wesseling, 2015), partly by sowing doubts about the causal relationships. Germany recently opposed the European proposal to ban internal combustion engines in passenger cars from 2035. The effects of climate change can hardly be seen today. In times of economic headwinds, such as the credit crisis and the outbreak of the coronavirus pandemic, the sector can count on support measures for declining production or boosting vehicle consumption. Schito (2021) calls the automotive sector the prime example of a subsidised industry and sees that subsidies are provided especially during election time. Thanks to the public support, companies were able to survive and difficult periods could be bridged. Partly because of this, brands such as GM, Tesla and Renault still exist (Mazzucato, 2015; Michielsen, 2020), but the dominance of the car is by no means challenged. As if widespread car ownership has become a goal in itself.

Increasingly, the car is also a financial construction and our financial-economic system is intertwined with the fate of the car and the major car brands. For several car conglomerates, financial activities have become more important for operating results than the actual production of cars. The financial arm of Volkswagen is larger than the Volksbank (SNS, ASN, Regiobank, etc.) in the Netherlands. For several car brands, the financial activities are so large that they are not under the supervision of the central bank in their own country, but under the direct supervision of the European Central Bank. The most extreme example in this group is probably General Motors. Less than 10% of the profits in the two decades before the credit crisis came from the sale of cars, which were the financial constructions, such as mortgages, car loans and (private) lease constructions, that made money. When the credit crisis in the Netherlands went wrong, the Lease Plan was the first to call for support.

Political parties are moving along with the sentiment among the supporters and have become so dependent on the car (Smaal, 2012). An increase in car ownership in the electorate contributes to a plea for car-friendly politics, with, for example, a low tax rate, minimal parking costs and ample space for the car. Conversely, calling into question the dominant role of the car in some circles is seen as political suicide, when a large majority of voters have their own car. In the event of an increase in car ownership, the political debate shifts from reducing car ownership and use to a more responsible 'rational' role of the car. The government can also depend on motor mobility for its revenues, which also creates an incentive to secure this revenue stream.

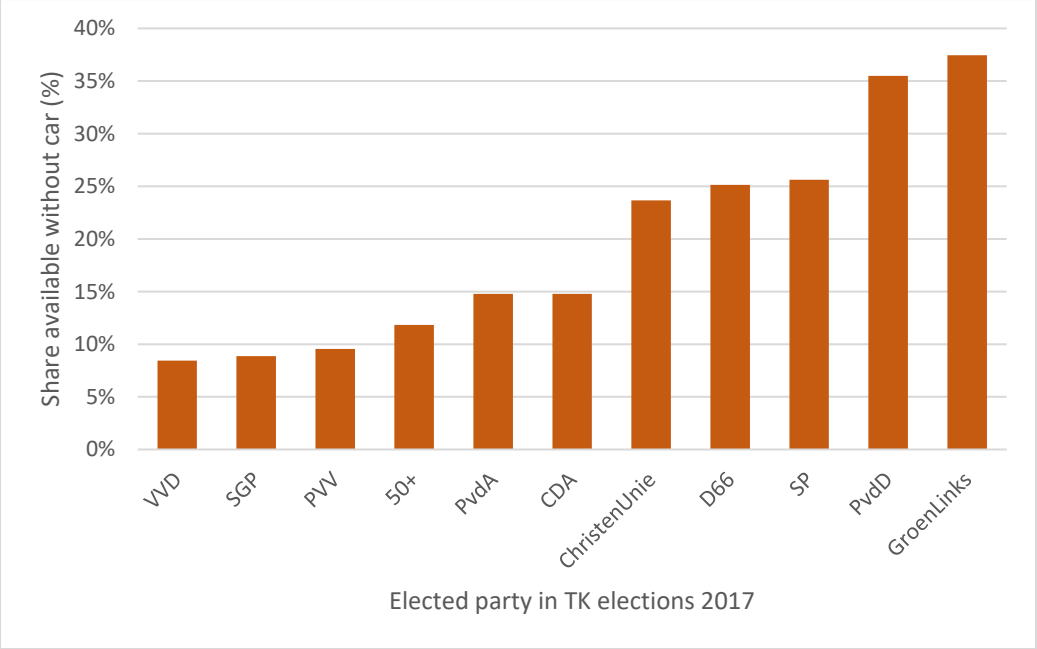

Figure 4: Relationship between chosen party in TK2017 car ownership (n=6,218). Dates: Peil.nl (2017), edit KiM

5. Autopia challenged

The position of the car has been a topic for discussions from the beginning (Paterson, 2007). Since the early years, a battle has been going on for urban space with the corresponding question: Who owns the city? (Verkade & Brömmelstroet, 2020). Children play too little outside, do not move sufficiently and can or may no longer walk on the street independently (Hillman et al., 1990). Drivers themselves can also suffer health damage due to the lack of physical exertion (Arseni & Racioppi, 2018; Rabl & De Nazelle, 2012), too warm a ball sack (Bujan et al., 2000) and prolonged exposure to sunlight on the left arm[8]. The car is associated with individualization, polarization and hardening in society (Rajan, 2006). Nature and the environment are under pressure from light, noise, vibration, roadkill, nitrogen and barrier action. For a quarter of a century we have been struggling with the climate challenge, a struggle that will continue for a while.

In response to the challenges, the supporters of the third perspective will first plead for the most radical break with the car system. Sand in the engine, poles in the road, new urbanity or another industrial policy. Followers of Perspective II advocate the uncooling of the car, an end to car racing, the polishing away of the car from the streets or a ban on car advertisements (Wright & Egan, 2000). Or the other way around glorifying the walker or cyclist. Perspective I steers on fast bike routes, free public transport, road pricing or subsidies on greener cars.

In response to societal pressure, the technical improvement of the vehicle itself is often sought (Paterson, 2007; Wesseling, 2015; Lemov, 2015). The car should be quieter, more economical, cleaner or safer. As an apparent no-regret measure, large majorities can often be formed for this. At the same time, it is unlikely that all challenges can be

[8] In Western countries where the right is driven, we see more skin cancer on the left arm. In other countries, the opposite is true (Vanderbilt, 2008).

tackled. The position of the car may be strengthened. In addition, some wishes also go difficult together. Additional safety measures often lead to heavier vehicles, increasing consumption and making people on the street or other road users more vulnerable. There may also be adverse effects. More economical engines or electric cars reduce costs, which can increase the use of the car. People who previously did not drive a car because of ecological principles may be pulled over the line thanks to the green variant.

The perspectives provide all three interesting points of departure for mobility policy. Changing perspectives can produce refreshing ideas. A broad consideration is therefore always a smart move.

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T2M Annual Conference 2025, Eindhoven: Mobility Alternatives

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Trajectories of a walking boom: How to establish pedestrian-forward planning in German cities?

The promotion of walking in German municipalities is gaining momentum. Recent initiatives – from walking "check-ups" and the appointment of walking officers to the publication of a National Walking Strategy – have introduced new staff, new approaches and new ideas about walking into local administrative structures. While the pandemic has already contributed to an increase in walking trips and distances (MiD [Follmer], 2025), this development in municipalities could further affect everyday practices of walking on the ground.

The quality of this potential "upswing" (Büttner & Weber, 2019) in pedestrian-forward planning deserves a closer investigation: How is such planning being established within German municipal administrations? What ideas about walking are shaping this rise? Does it represent a substantial shift within planning practices – not just on the streets?

The study is based on 22 interviews with operational and context experts from German administrations, planning firms, research and advocacy groups (Meuser & Nagel, 1991). It looks at planning as dynamic and diverse practices, carried by different actors and entangled with the everyday practices they aim to plan for (Larsen, 2017; Levin-Keitel & Behrend, 2023; Shove et al., 2012). The analysis further draws on the steps of the policy cycle (Howlett et al., 2009 in Marsden & Reardon, 2017) and the differentiation of instrumental and place-based rationalities applied to pedestrian-forward planning (Lindelöw et al., 2016; Stangl, 2008).

This paper identifies six intertwined trajectories of how pedestrian-forward planning has been established in German municipalities – focusing on carriers (I-III), practice relations (IV), meanings (V) and materials (VI) of this development:

I. how other actors, but the federal government, have carried the movement to the national level and provided structural support to municipalities;
II. how a "new generation" of planners is further carrying the integration of pedestrian-forward planning in municipalities;
III. how their everyday planning practices have increased awareness of walking as a transport mode among colleagues in municipal administrations;
IV. how the establishment of walking is set in relation to cycling-forward planning in municipalities, with tensions between demands to, on the one hand, emancipate itself from cycling as a "winner topic" that can also thrive in a politically conservative agenda and, on the other hand, forming an alliance with cycling advocates for the sake of a comprehensive social-ecological transformation;
V. how the diversity of meanings related to walking is emphasized in planning practices, but reduced to aspects of accessibility and traffic safety in the context of political pressure;
VI. how the walking boom on the streets is rather an *argument for* than a *result of* pedestrian-forward planning in municipalities.

The study reconstucts how pedestrian-forward planning has advanced through engaged carriers, supportive blueprints and thematic flexibility. Yet the increase in walking trips cannot be attributed to already implemented measures of municipalities. Rather, the "upswing" of pedestrian-forward planning refers to an increasing success of agenda setting – from the national level through municipal planning departments. Further aspects of the policy cycle – policy formulation, implementation or even evaluation – remain largely untouched by this upswing (Marsden & Reardon, 2017).

The study shows how walking is politicized in municipal contexts. In everyday planning practices, walking can develop and mold into ambiguous rationalities of both a place-based approach that emphasizes the quality of stay or an instrumental, rule-based approach that regards walking as just another – alternative – transport mode in the same logics as cycling or car driving (Lindelöw et al., 2016).

For research, policy and planning, the findings highlight both the potential and ambivalence of pedestrian-forward planning – that is due to political constellations in municipalities and, overall, the dominance of the elephant in the room: automobility. On the one hand, walking practices do have the potential to substitute short car rides and to more systematic integration with public transport. Pedestrian-forward planning can, aided by adequate data and awareness within administrations, strengthen the position of walking as a transport mode. On the other hand, walking practices encompass many more aspects and contributions to the coordination of everyday life than being a mere mobility alternative. As some planning experts argue, the role of quality of stay and liveability within the social-ecological transformation need further elaboration – and walking can form a central part in this context.

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The Value(s) of Ownership in Energy-Mobility-Housing Sustainability Transitions: Literature Review & Assessment Framework

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Questions to readers and audience at T2M Alternative Mobility Conference

We welcome feedback on our paper and would, additionally, appreciate to hear your thoughts on the following question:

Our systematic literature review and ownership assessment framework represent work in progress. In the meantime, we are exploring research cases and preparing empirical work to research alternative ownership forms and cross-sectoral innovations within mobility transitions. Think of an apartment complex where tenants have access to communal electric vehicles charged by solar panels on the roof; energy cooperatives providing shared mobility; and public-private partnerships to extend public transport concessions with automative electric shuttles. In these initiatives, who owns the technologies and infrastructures, and what does (hybrid, public, private, and/or cooperative) ownership mean for sustainability outcomes, shared responsibilities, benefits and burdens, and the rights and needs of residents and users? How can our conceptual work support the practical questions within such research cases? Get in touch via e.m.boersma@uu.nl.

Abstract

Ownership is a fundamental yet underexplored dimension of sustainability transitions. It shapes who makes decisions, carries responsibilities, and benefits from innovations and infrastructures—issues increasingly central to justice and climate debates. While sustainability transitions scholarship has examined governance, institutions, and social practices, ownership has only been addressed minimally, and often in fragmented or normatively loaded ways. This paper develops a conceptual lens on ownership by systematically reviewing recent literature on ownership and sustainability in three sectors with key societal functions: energy, mobility, and housing. Building on public values theory and value pluralism, we map how different ownership forms can embody and mediate sustainability-related values, such as sustainability, affordability, autonomy, and equity, and how these values can generate tensions and trade-offs in transitions. Our analysis reveals that ownership structures are not inherently just or unjust, effective or ineffective; instead, they reflect context-dependent strengths, weaknesses, and value conflicts. By disentangling normative assumptions from legal characteristics, we propose a foundation for an ownership assessment framework that clarifies governance dilemmas and supports more reflexive debates on just sustainability transitions.

This conceptual work is at the disposal of organizational, political, social, and economic academic questions and issues within sustainability transitions. As well as at the disposal of ongoing empirical research on mobility alternatives within the Justnexus research project. Research cases we look at include energy cooperatives providing shared electric mobility in a rural area, and public-private partnerships to provide an automative electric shuttle for migrant workers in an industry area.

Keywords: Ownership; Sustainability transitions; Public values; Justice

1. Introduction

Ownership is an important existing factor in the economic and political context that inhibits and shapes structural change during transitions, but in sustainability transitions literature, ownership remains underdeveloped. Ownership structures determine who makes decisions, who carries responsibilities, and who reaps the benefits of innovations and infrastructure: questions that are increasingly central to social justice and climate policy debates (de Vries et al., 2024). A few examples of ownership discussion in sustainability transitions include debates of privatization and (re)municipalization, e.g. liberalization shook up the electricity sector (Joskow, 2006), and government-owned enterprises are re-emerging as promising actors in sustainability transitions (Meelen & Sluijs, 2025). Despite its relevance, ownership has been largely overlooked in academic debates, and where it is discussed, the terminology is often unclear or laden with normative assumption about public, private, or cooperative ownership, as pointed out by for example: (Becker & Kunze, 2014; Gorroño-Albizu et al., 2019; Hicks & Ison, 2018; Hoffman et al., 2013; Lankoski & Smith, 2018; Seyfang et al., 2014). At the same time, ownership is diversifying. Hybrid and mixed forms are proliferation, reflecting broader governance trends such as collaborative-, network, and new public governance (Bodin, 2017). Which constellation of ownership forms can produce the most sustainable and equitable outcomes, however, remains unclear.

Our paper addresses this research gap by exploring which sustainability-related values are associated to and negotiated in different ownership forms; unraveling normative values from objective legal characteristics of ownership forms. We respond to sustainability transitions research increasingly acknowledging the multiplicity of values and the tensions between them within transitions (Ciplet & Harrison, 2020; Soh & Martens, 2024; van der Wel et al., 2024). While early sustainability research primarily emphasized carbon emission reduction, in more recent work different aspects of sustainability, beyond only carbon emissions, are addressed and researched, such as: biodiversity, circularity, justice in sustainability, energy efficiency, and economic development. This is not only due to multiplicity, contestability, directionality and normative diversity (de Graaff et al., 2025; Stirling, 2011) and *wickedness* (Rittel & Webber, 1973) of and within sustainability transitions, but also because of different views and research approaches. Sustainability transitions is a very interdisciplinary field with multi-level ambitions (Köhler et al., 2019). Different disciplines bring contrasting perspectives (Stirling, 2011), and even within approaches, multiple conceptions of justice for instance, compete for attention (Ludwig, 2025; Weghorst et al., 2024). Working on interconnected goals like climate mitigation and social equity simultaneously introduces value trade-offs and conflicts (Ciplet & Harrison, 2020; Kainiemi et al., 2025; van der Wel et al., 2024). Balancing rapid policy actions with inclusive governance processes, for instance, demands identifying and responding to these tensions with strong governance to advance a just transition, especially in the context of growing inequality and climate change (Ciplet & and Harrison, 2020).

This paper contributes to these debates by discussing the role of ownership in relation to values and value tensions in transitions. Our research asks: *How do different ownership forms reflect diverse values, and how can they be balanced and negotiated, in sustainability transitions?*

We define ownership as possessing various rights by a natural or legal person over an object (Honoré, 2000). Sustainability transitions are defined as processes of long-term structural change towards more sustainable societal systems that include profound changes in ways of doing, thinking, and organizing, as well as in underlying institutions and values (Loorbach et al., 2017). With values, we refer to fundamental principles or guiding beliefs that shape decision-making, governance, and organizational behavior. Values in this sense are not just individual preferences, but rather socially embedded, collective ideals that influence how societies navigate tensions between economic, environmental, and social imperatives.

More specifically, for our theoretical approach, we draw on public values literature (Benington, 2015; Bozeman, 2007; Hartley et al., 2019; Moore, 1997). In this field, society's public values are defined as "providing normative consensus about a) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; b) the obligations of citizens to society, the state, and one another; and c) the principles on which governments and policies should be based" (Bozeman, 2007, p. 13). These values include among others: equal treatment, fairness, reliability, sustainability, social cohesion, stability, innovation, accountability transparency (Jørgensen & Bozeman, 2007). Public values, such as equity, participation, efficiency, and sustainability, are collectively recognized as important, but can create conflicts. In cases where values are incompatible or incommensurable, it is referred to it as value pluralism (de Graaf et al., 2016; van der Wel et al., 2024). This comes with challenges, as there are many things to take in mind, and can create delay, while urgent climate action is needed. Value pluralism does not resolve tensions in abstraction, but instead makes them visible and tractable within governance processes. This pragmatic orientation towards actionable justice provides a suitable analytical lens for examining ownership, since ownership arrangements influence who makes decisions about values, whose interests are prioritized, and how trade-offs are managed.

Our central argument is that ownership structures inevitably embody and mediate value tensions in sustainability transitions. No ownership form is perfect, or is inherently 'just' or 'unjust'; all entail strengths and weaknesses, and their contribution to sustainability outcomes and social goals vary per context. By unpacking how ownership forms reflect different sustainability-related values, and separating normativity from objective characteristics, we can identify concrete and refined governance tensions, opportunities and risks. This contributes to recent calls for more attention to politics and power in transition processes (Avelino et al., 2024; Köhler et al., 2019).

Focus on Energy-Mobility-Housing

This conceptual paper presents a systematic literature review of ownership and sustainability. We explore papers which discuss this relation to discover the values that different ownership forms reflect. To ensure that our list of values and value tensions does not become endless, we focus on three sectors that serve key societal functions and are highly relevant in sustainability. We look at the energy, mobility, and housing sectors. This sector scoping is chosen because these sectors shape how people (can) live their lives. Energy, mobility, and housing are key provisional sectors that fulfill key societal functions that transition studies often study (Geels, 2004). However, in these studies ownership is relevant but overlooked, for instance in market mechanism debates, and cooperatives increasingly emerging. Compared to energy and mobility, the housing sector is quite understudied in transitions literature, while very important for energy and mobility challenges in transitions. Ownership, for instance owning a house, is particularly relevant in the coming together of energy-mobility-housing and its social justice issues. Think of: whether you own a home influences your rights and possibilities to improve the sustainability of your energy use (Galvin & März, 2025; Lang et al., 2022; Mininni et al., 2024) and it influences whether you can invest in sustainable innovations such as vehicle-to-grid, solar panels, EV-charging infrastructure, or a heat pump. Additionally, sustainability transitions in these three sectors are shaped by consumer behavior and, simultaneously, are foundational to everyday life. Challenges in these sectors are highly relevant and overlap, think of grid congestion (Hennig et al., 2023), scarcity of space, flexibility justice (Powells & Fell, 2019), etc. In these sectors it has proven to be complicated and challenging to shift towards more environmentally ecological, environment-friendly and efficient mobility systems (European Parliament, 2022). Additionally, justice issues are particularly pronounced in these domains (Carley & Konisky, 2020; Henderson, 2020).

So, we have systematically reviewed literature on energy, mobility, and housing transitions, to identify how ownership forms are associated with particular values, and how these values may

conflict or reinforce one another. This allows us to develop a theoretical lens as it lays the theoretical foundation for an ownership assessment framework that can support future empirical research on ownership and just sustainability transitions.

2. Theoretical framework

Within current sustainability transitions research and debates there is growing attention to topics of governance, plurality of values, social justice, politics and power. Within these themes, focus on ownership is overlooked, as an influential implicit or explicit factor. Therefore, we shortly delve into these topics and state of the art of sustainability transitions literature. We also discuss value pluralism, and public values literature. To develop an analytical lens for exploring ownership in sustainability transitions, we build on insights from public values scholarship. This allowed us to preselect a set of values to guide our systematic literature review.

2.1 Governance, plurality and justice in sustainability transitions: state of the art

As attention to climate change grew, so did the attention to justice aspects of its effects and policies. But while climate change has been debated for a few decades, justice approaches and perspectives have been debated for centuries, going back to Aristotle and Plato, and more recently Rawls and Sen. Many brilliant minds have tried to grasp, define, and apply what the concept of justice entails and have debated what the implications of different approaches are. Resulting in different forms of justice, think of utilitarianism, contractarianism, and egalitarianism (Miller, 2025). Resulting in several principles of justice such as liberty and equality (Rawls, 1971) and Rawls' difference principle or maximin: seeking to maximize the position of those worst off (Freeman, 2018). Other justice principles include Nozick's principle of respect for individual rights as yardstick for just action; Dworkin's principle of equal concern and respect for persons; capabilities as criteria through which to assess societies by Nussbaum and Sen (Wood et al., 2024), but also access, participation, trust, and many more. How justice is interpreted and defined, by political philosophers, sustainability researchers, politicians, public servants, and others, structures societies, institutions, and behavior. What is seen as fair, just, and equitable and which justice principles are valued the most influence politics, economics and how complex societal issues are approached. We recognize the wide variety and great history of justice conceptions and debates and we point out that many interpretations and approaches exist and how they are viewed and valued influence societal phenomena and decision-making, both explicitly and implicitly.

Issues of social justice, go further than social support or including some citizens in decision-making. Not only is social support needed for climate action to gain traction, but a focus on just sustainability transitions is crucial to prevent exacerbating existing inequalities or even creating new ones, potentially leading to social divisions and discontent (EEA, 2024). For example, in the Netherlands increasing inequality and discontent is evident through farmers' protests and extreme-right politicians winning elections. Similarly, the 'yellow vests' protests in France showed how it is essential that the public perceives climate cost distributions as fair and just (De Vries et al., 2024). This broader view on sustainability, to include social aspects such as trust, equitable distribution of benefits and burdens, and fair processes, is extremely relevant. The role of justice in sustainability is covered more and more in research and policy as well, for instance (Agyeman et al., 2003; ICLEI, 2023).

A focus on justice in the transitions to low carbon and ecologically sustainable societies inherently relates to distributional questions and tradeoffs and therefore requires attention to governance (Wang & Lo, 2021). Working on interrelated goals at once, such as justice in sustainability, can create tensions and difficult (political and economic) decisions (Ciplet & Harrison, 2020; Kainiemi et al., 2025; van der Wel & Akerboom, 2024). These tradeoffs include conflicts between rapid policy actions and inclusive governance processes, sustainability performance and recognition of diverse value systems, and the equitable distribution of benefits and burdens. Identifying and responding to

these tensions with strong governance is essential to advance a just transition, especially in the context of growing inequality and climate change (Ciplet & and Harrison, 2020).

Within just sustainability transitions the challenge lies not only in accelerating decarbonization, but also in addressing inequalities, recognition, and participation. Governance of just sustainability transitions entails steering complex, contested, and value-laden processes. Where early transition scholarship emphasized technological innovation and systemic change (Geels, 2004; Loorbach et al., 2017). More recent work highlights politics, power, and justice (Avelino et al., 2024), stressing that transitions are neither neutral nor purely technical but profoundly normative (Köhler et al., 2019). This shift has led to a growing recognition of directionality and plurality of values within transitions and the inevitability of tensions between them (de Graaff et al., 2025; Stirling, 2009). In sustainability transitions, tensions between values have become increasingly salient (Ciplet & Harrison, 2020; Niet, Dekker, & Van Est, 2022; Soh & Martens, 2024; van der Wel et al., 2024; Weghorst et al., 2024).

Across literature on conflicts between sustainability goals and concerns of inclusivity, recognition, and equity (Ciplet & and Harrison, 2020) and across energy-mobility-housing justice (Broers et al., 2022; Carley & Konisky, 2020; Dawkins, 2021; Jenkins, 2019; Sheller, 2018; Sovacool & Dworkin, 2015) governance is framed as the art of negotiating trade-offs between competing imperatives, such as rapid emission reductions versus participatory legitimacy, affordability versus financial viability, or local anchoring versus economies of scale. However, the governance of just sustainability transitions is complicated by two features. First, *directionality* (Stirling, 2011; de Graaff et al., 2025): transitions do not unfold automatically but are steered toward specific visions of the future. These visions reflect competing societal priorities, requiring governance mechanisms that make value choices explicit. Second, *value pluralism* (de Graaf et al., 2016): many relevant values are incommensurable and cannot be reduced to a single hierarchy. This implies that governance cannot resolve conflicts in the abstract but must pragmatically navigate them in context. Public values scholarship provides a framework to identify and articulate societal values and makes normative dimensions explicit. This literature accommodates value pluralism and conflict as they are inherently plural and often incommensurable, matching the reality of transitions, where multiple legitimate values clash. Instead of seeking a single optimal solution, the public values perspective recognizes that governance is about balancing and negotiating competing imperatives. Public values scholarship links governance processes to legitimacy as it takes into account what is values by and for the public. We argue that, within governance processes, ownership arrangements embody and mediate values and value tensions, and that disentangling their leir legal characteristics from normative assumptions can enrich governance approaches to just sustainability transitions, using the public values concept.

2.2 Public values

To better grasp the public values concept we shortly go into the different conceptions and important contributors to the field. The conceptualization of Moore (Moore, 1997), looks at the dynamic concept, where public value is created. He conceptualized what happened inside organizational boundaries *and* outside them, in terms of outcomes which are seen as valuable to society (Hartley et al., 2019). Moore developed the strategic triangle that can be considered as a tool to help managers discern and create public value (Brown et al., 2021). Bennington theorized two dimensions of public value, and placed this in the context of the public sphere (Benington, 2011, 2015). He stated that the creation of public value is a contested democratic practice (Benington, 2015). Drawing on the work of (Habermas, 1962) and other scholars to define the public sphere as a democratic space that includes the ‘web of values places, organizations, rules, knowledge, and other cultural resources held in common by people through their everyday commitments and behaviors and held in trust by government and public institutions’ and the public sphere ‘provides a society with some sense of belonging, meaning, purpose and continuity, and which enables people to thrive and to strive amid uncertainty’ (Benington, 2011).

Bozeman (Bozeman, 2007) and Meynhardt (Meynhardt, 2009) conceptualized what public value is and how it is created in and for society. Bozeman pointed out the importance of recognizing that public value is value frame dependent (Bozeman, 2007). He held that public values represent a normative consensus about key values in society (Hartley et al., 2019). Pointing out the importance of public values in the plural, rather than the singular (Bozeman, 2007). Meynhardt argued for recognizing that it is very much context dependent (Meynhardt, 2009). He held that public value is valuing relationships between a subject (an individual or a group) and an unknowable social entity (Hartley et al., 2019). Additionally, (Hartley et al., 2019) draw on (Benington, 2011) to focus on public value as the tension between what is valued by members of the public and what adds value to the public sphere. Overall, in many cases, the public values concept is used a theoretical tool applied to understand a complex and wicked societal challenge (Hartley et al., 2019), such as organizing a just sustainability transition. Moreover, the public values concept fits within the New Public Governance paradigm that involves more multi-actor collaborations and network governance: creating public value together with market organizations, civil society and other non-government parties (Osborne, 2006). The diverse conceptualizations of public values have in common that public values provide the normative foundations of governance. Such values coexist in conflict and cannot be reduced to a single overarching hierarchy (de Graaf et al., 2016; Jørgensen & Bozeman, 2007).

2.3 Preselecting values from public values in transitions literature

To work towards a list of values, or normative foundations of governance, for just sustainability transitions in energy, mobility, and housing, we use existing literature. To guide our systematic literature review on ownership forms, we preselected a set of public values based on theoretical and empirical work. This preselection, derived from sustainability transitions, public values, and ownership studies, provided the foundation for our coding process and clarified which values and value tensions to track in the literature. We start with an overarching and foundational set of values, as described by (Jørgensen & Bozeman, 2007) presented in table 1.

Nodal Values, Neighbor Values, and Covalues

Nodal Value	Neighbor Values	Covalues
Human dignity	Citizens' self-development, citizen involvement, protection of the rights of the individual	Justice, benevolence, voice of the future, equity
Sustainability	Voice of the future	Stability, continuity, the common good, the public interest, moral standards, ethical consciousness, solidarity
Citizen involvement	The will of the people, listening to public opinion, responsiveness	Dialogue, balancing interests, self-development
Openness	Responsiveness, listening to public opinion	Accountability, rule of law, dialogue, democracy, the will of the people, collective choice
Secrecy		Stability, continuity, the rule of law, protection of the rights of the individual, productivity, effectiveness
Compromise	Balancing interests	Reasonableness, fairness, dialogue, adaptability, robustness
Integrity	Honesty, dignity, fairness, ethical consciousness, moral standards, professionalism, openness, impartiality, loyalty to the regime	
Robustness	Stability, adaptability, reliability	Legality, social cohesion, flexibility, responsiveness, rule of law, timeliness, effectiveness

Table 1. Set of nodal-, neighbor-, and co-values presented in (Jørgensen & Bozeman, 2007)'s inventory of public values.

This provides a good base, that we add to with works who have integrated public values and transitions scholarship. (van der Wel et al., 2024) as well as (Niet, Dekker, & Van Est, 2022) both developed theoretical frameworks integrating public values literature with energy transition studies. (Niet, Dekker, & Van Est, 2022) provide an overview of public values that are expected to play a role in the context of digital energy platforms (Table 1), distinguishing between entrenched values—such as sustainability, reliability, affordability, security, and privacy—and emerging values, including balances of power, equity and equality, control over technology, and autonomy.

Overarching Public Values	Description
Entrenched overarching public values	
Sustainability	Development meeting the needs of the present without compromising the ability of future generations to meet their own needs. This includes life of dignity for all within the planet's limits, reconciling economic efficiency, and environmental responsibility
Reliability	Security of supply; relative independence and diversification of energy fuels and services and stability of the energy system

Overarching Public Values	Description
Affordability	People can afford energy services, prices are stable, and there is equitable access to energy services. It includes lack of energy poverty and fuel poverty and has been one of the reasons to encourage liberalization and privatization of the energy market
Security	Information security, identity fraud prevention, physical safety, and cybersecurity
Privacy	Data protection, mental privacy, spatial privacy, surveillance, and function creep including using data for other purposes
Emerging overarching public values	
Balances of power	Shifting relations between government, consumers, and businesses including fairness of competition (a fair market), nondiscriminatory access, and terminating exploitation
Equity and equality	Preventing discrimination and exclusion, ensuring equal treatment, prevHenting unfair bias and stigmatization, and aiming for due process and inclusiveness
Control over technology	Control and transparency of algorithms, clear accountability, predictability, and giving both consumers and other market actors enough information
Autonomy	Freedom of choice, freedom of expression, preventing manipulation and paternalism, and self-direction. This is also related to self-enhancement, such as building individual and community skills and capacity, and enhancing pride

Table 1. Overview of the Public Values That Are Expected to Play a Role in the Field of Digital Energy Platforms by (Niet, Dekker, & Van Est, 2022).

Van der Wel and colleagues (2024) categorize public values in energy systems along four dimensions: ‘environmental’, ‘economic’, ‘technical’, and ‘socio-ethical’. Their categorization overlaps with (Niet, Dekker, & van Est, 2022), and we adopt it as a structuring device, while highlighting values emphasized in other relevant studies on broad social welfare, justice in sustainability, and ownership.

Environmental values include sustainability, environmental protection, naturalness, and being not wasteful—concepts echoed in ownership literature as, for example, ‘product care’ (Ackermann & Tunn, 2024) or in a political-philosophical perspective linking access-based consumption and ownership to sustainable practices (Salman & Claassen, 2018). Economic values cover efficiency, affordability, availability, accessibility, and competitiveness, reflecting energy justice and social welfare perspectives (Bastiaanssen & Breedijk, 2022, 2024; Smits, 2025; Sovacool & Dworkin, 2015). Technical values comprise reliability, safety, and security. Socio-ethical values include autonomy, privacy, justice, good governance, quality of life, and localness, drawing on the capabilities approaches (Alkire, 2003; Sen, 1993).

We specify these values to ownership, and broadening the energy-focused lists of (Niet, Dekker, & van Est, 2022; van der Wel et al., 2024) to housing and mobility, by building on (Salman & Claassen, 2018)’s perspective on access-based consumption. Their work highlights how ownership, or the lack thereof, shapes efficiency, autonomy, and sustainability. Building on these works, we refined the definition of autonomy to encompass not only independence but also customizability, freedom, and the capacity to make choices affecting one’s home or mobility choices, which is particularly relevant for housing and mobility contexts

As guidance in determining which values to focus on, I also build on the work of Al Salman & Claassen who provide a political-philosophy perspective on the rise of access-based consumption. They demonstrate the development of consumers increasingly not owning the goods they buy, but merely being granted access to them by providers (Al Salman & Claassen, 2018). The authors derive

three criteria for evaluating ownership and access arrangements: ‘efficiency’, ‘autonomy’, and ‘sustainability’ (Al Salman & Claassen, 2018). We further review and add to these values in combination with other works in the literature review.

Additional values relevant for ownership arrangements across energy, mobility, and housing include flexibility (Powells & Fell, 2019), psychological ownership (Patrick & Eddy, 2025; Tian et al., 2025), economic viability, innovative capacity, beauty, usability, incentives, responsibility, trustworthiness, and varied conceptions of justice (Schlosberg, 2007; Weghorst et al., 2024).

The resulting long list of preselected values is:

- Sustainability, Not wasteful, Environmental protection, Naturalness
- Affordability, Efficiency, Availability, Accessibility, Competitiveness
- Security, Reliability, Safety, Privacy
- Balances of power, Equity and equality, Fair process, Control over technology
- Autonomy, Independence, Customizability, Freedom
- Good governance, Quality of life, Localness

As we have shown, these preselected values, primarily based on (Niet, Dekker, & van Est, 2022; Salman & Claassen, 2018; van der Wel et al., 2024) are further supported by studies on ownership, energy justice, mobility justice, housing justices, and the capabilities approach (Robeyns, 2017; Salman & Claassen, 2018; Sen, 1993; Sheller, 2018; Smits, 2025; Sovacool & Dworkin, 2015). Importantly, this preselection did not predetermine our findings or formulated hypotheses; rather, it structured the exploration of how values and value tensions are associated with different ownership forms in the literature by informing our analysis.

2.4 Value tensions and ownership developments in sustainability

In our analysis, we do not only search for which values are mentioned about different ownership forms, but also for the value tensions that can be seen in relation to ownership and sustainability. We build on work of (Ciplet & Harrison, 2020), as they propose a framework of three tensions central to just sustainability transitions: sustainability-inclusivity, sustainability-recognition, and sustainability-equity. These illustrate how advancing climate goals can collide with inclusivity of governance processes, recognition of marginalized groups, and equity in the distribution of benefits and burdens. We build on this framework, while also identifying additional tensions in the literature, such as rapid action versus participatory legitimacy, affordability versus financial viability, local anchoring versus economies of scale, or needing less products in renting or sharing models versus longer use of products as people take better care of products when they own them (Ackermann & Tunn, 2024).

As we’ve mentioned earlier, ownership forms can be seen as a reflection of diverse values. No ownership form is perfect, but all forms have different strengths and weaknesses. In some ownership forms and in mixed ownership structures, these can be combined. For example, in government-owned enterprises there is both market incentive and competitiveness to be innovative and efficient. But there is also less of a profit maximalization incentive, and the possibility to create more stability and to have more direct contact with politics (Bozeman, 2007; Meelen & Sluijs, 2025). Energy communities can be seen as a combination of local participation and psychological ownership, who are also influenced by some market incentives. Though they are often less scalable, encounter democratic governance challenges, and can lead to unfair distribution over regions.

Ownership concepts and terms that frequently surface in sustainability transitions research across energy, mobility, and housing. These include: public–private partnerships (PPPs), (re)municipalization, privatization, assetization, liberalization, energy communities, mobility and energy cooperatives, social housing, the sharing economy, access- and service-based models, renting,

government-owned enterprises (GOEs), state-owned enterprises (SOEs), municipality-owned companies (MOCs), and corporate responsibility. Together, these terms capture both established and emerging ownership terms and constructions in just sustainability transitions.

Finally, our work builds on earlier attempts to separate normative values from objective characteristics of ownership. (Lankoski & Smith, 2018) developed a framework positioning legal ownership types along a continuum from profit-maximization to social welfare orientation. This framework is very valuable in separating normative values from legal characteristics, but risks collapsing multiple tensions into a single dimension. In line with our value pluralism approach, we argue that social welfare values cannot be reduced to one axis/scale. Instead, we work towards an ownership assessment framework with a diversified scale of normative values. We systematically search the literature to find out which sustainability-related values and value tensions are relevant for such an ownership assessment framework.

3. Methodology

As research on the role of ownership in sustainability is limited and fragmented across disciplines, we argue that a systematic literature review is needed to bring these insights together. We reviewed papers that discuss ownership or a specific ownership form (think of energy communities; mobility cooperatives; housing corporations; state-owned energy companies; et cetera) and discuss the motivations or effects of the ownership (form) for sustainability transitions.

The methodology and structure of our work was inspired by researches that also used a literature review to work towards a conceptual framework, such as (Bindi et al., 2025; Maletič et al., 2014; Revez et al., 2022; Wejnert-Depue et al., 2025). The methods of the systematic literature review were based on similar literature reviews such as (Meelen & Sluijs, 2025) and methodological literature (Petticrew & Roberts, 2006). Our goal was to systematically search for and in academic literature to find which values and value tensions are mentioned as important in relation to different ownership forms and their influence on sustainability transitions. In our view the literature review needed to be systematic to make sure we did not miss relevant insights. The systematic review allowed us to cross multiple research fields and disciplines.

3.1 Literature search

Via Scopus we searched for articles about ownership and sustainability. These and equivalent terms were central to our systematic search, hence we only included articles that either explicitly or implicitly mentioned ownership and sustainability. An implicit mention of ownership meant articles about a specific ownership form, for instance ‘state owned enterprise’ or ‘renewable energy community’, or about ownership related developments, for instance ‘sharing economy’ or ‘servitization’ or ‘leasing’. Sustainability equivalent terms included ‘just transition’ and ‘sustainable development’. We sharpened our scope by specifying towards the energy, mobility, and housing sectors, and excluding article on for instance agriculture or nursing, to ensure focus and usability of the review and framework.

Additionally, we only included peer reviewed literature from the last fifteen years for analysis in the English language. This time frame was decided upon to ensure we included recent academic debates and societal developments. The other requirements ensured the quality and manageability of the selection for analysis.

The search terms were based on three pillars: 1) ownership; 2) sustainability & values therein; and 3) sector scoping. The search query was as follows:

> TITLE-ABS-KEY (("*owned" OR "*ownership" OR (ownership W/3 (model* OR form* OR structure*)) OR "state owned enterprise*" OR "municipal utilit*" OR "municipality owned enterprise*" OR "government owned enterprise*" OR "public enterprise*" OR "municipal compan*" OR "crown compan*" OR "energy communit*" OR "remunicipalis*" OR "community land trust" OR "housing cooperative" OR "leasing" OR "cooperativ*" OR "co-op" OR "shared equity homeownership" OR "platform cooperativ*" OR "servitization" OR "public private partnership" OR "PPP concession") AND (("sustainability" OR "sustainability W/3 (transition* OR governance OR practice)") OR "just transition*" OR "energy justice" OR "mobility justice" OR "housing justice" OR "climate justice" OR "public value*") AND ("energy transition*" OR "energy system*" OR "public transport" OR "mobility as a service" OR "urban transport" OR "shared mobility" OR "electric vehicle*" OR "mobility as a service" OR "affordable housing" OR "housing system*" OR "urban mobility" OR "sustainable transport" OR "affordable mobility" OR "urban planning" OR "spatial planning")) AND PUBYEAR > 2009 AND PUBYEAR < 2026 AND NOT TITLE-ABS-KEY ("agriculture" OR "livestock" OR "farming" OR "food" OR "nursing" OR "health care" OR "total cost of ownership" OR "mining" OR "dairy sector" OR "dairy industry" OR "wine sector" OR "land conservation" OR "waste management" OR "life cycle assessment" OR "circular economy" OR "car ownership") AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (LANGUAGE , "English"))

This resulted in a long list of 781 articles. The titles, abstracts, and key words of these articles were scanned and in- or excluded. Articles are **not relevant** when:

- the role of ownership is very small. So, these search terms need to be mentioned in the title, abstract or key words.
- ownership is not part of the analysis or part of the results. So, for example, if ownership is only mentioned in the introduction, it is not relevant.
- papers were published in predatory or otherwise suspect journals, using Cabells Journalytics Academic & Predatory Reports. They need to be peer reviewed and of high quality.
- papers do not present any empirical data, systematic review, or empirical examples. E.g. purely conceptual papers; or opinion pieces, are not included.
- papers do not mention anything about the motivations, effects, characteristics, or characteristics of the ownership form. We need to be able to retrieve values and value tensions from the papers we analyze. So something needs to be said about the relations between values and (a form of) ownership. (We'll mention some examples.) (This filters articles about product ownership. And we can justify this required relation between ownership and values well, given our research question.)

Additional articles were selected through snowballing. The systematic literature search and review were conducted by author 1. Four random sample sets of articles were cross-checked by authors 2 and 3. This ensured a quality checks in two ways: that we in- and excluded similar articles for analysis and that we retrieved similar findings from the articles. We used generative AI (Scite, Research Rabbit, and Elicit) to perform an additional cross-check to ensure we did not miss relevant articles.

3.2 Literature analysis

The selected articles about ownership (forms) and sustainability were analyzed to see which values and value tensions are mentioned about different ownership constructions. This was done by first reading the abstract, introduction, and conclusion, and then by abductively coding the article. Coding

was done via Excel. The coding was abductive: inspired and shaped by the preselected ownership forms and concepts, and by the preselected values and value tensions mentioned in section 2, but with an open view, and space for new findings (values) and insights.

After inclusion, we **analyze** the papers by noting down the following aspects. The categories in the coding process included:

- Paper title
- Authors
- Publication year
- Journal
- Topic, and focus
- Sector (dropdown selections)
    - Energy
    - Mobility
    - Housing
- Sector elaboration (e.g. individual electric mobility; solar panels)
- Country (of data collection; context of selected cases/empirics)
- Methods (dropdown selections)
    - Qualitative
    - Quantitative
    - Systematic literature review
- Methods elaboration (e.g. secondary descriptive data analysis + semi-structured interviews)
- Ownership of what (e.g. energy enterprise; shared electric cars; apartment complexes)
- Key findings
- Ownership type (e.g. cooperative; municipality owned company)
- What is mentioned about legal characteristics/form; is it defined yes or no
- Values mentioned (dropdown selections)
    - Sustainability
    - Not wasteful
    - Environmental protection
    - Naturalness
    - Affordability
    - Efficiency
    - Availability
    - Accessibility
    - Competitiveness
    - Security
    - Reliability
    - Safety
    - Privacy
    - Balances of power
    - Equity and equality
    - Fair process
    - Control over technology
    - Autonomy
    - Independence
    - Customizability
    - Freedom
    - Good governance
    - Quality of life

    - Localness
- Values mentioned – open
- Process: How does the ownership form influence the values/impact/effect on sustainability? Is the effect on values positive or negative?
- Value tensions mentioned
- Solutions mentioned for challenges, weaknesses or tensions

The analysis was descriptive and cross-checked among the authors.

4. Results – preliminary findings

In this section, we synthesize the findings of our systematic literature review. We do not present all values and tensions mentioned in the literature, but focus on those deemed important for understanding the role of ownership in sustainability transitions. In addition, we highlight broader insights regarding normative biases, the increasing diversification of ownership forms, and the significance of governance contexts. These results are preliminary, as the review is still ongoing.

4.1 Competing the set of preselected values

Many of the values identified in our theoretical framework (Section 2) were indeed mentioned in relation to ownership forms.

Environmental values such as resource use and efficiency were noted e.g. (Poshnath et al., 2025). Economic values featured prominently, including efficiency, fast energy transition (Santos et al., 2025), economic viability (Peyrani et al., 2025), feasibility (Santos et al., 2025), and financial resources and risks (Ren et al., 2025). Affordability was also highlighted (Poshnath et al., 2025). Technical values included reliability (Jordan & Semmer, 2025). Socio-ethical values encompassed equitable allocation (Poshnath et al., 2025), inclusive participation (Beemer et al., 2025), participatory governance (Van Opstal et al., 2025), and just transition goals (Santos et al., 2025). Across studies, economic viability was consistently emphasized as crucial for long-term sustainability contributions.

Additional values not included in our preselection but emerging from the literature include: Incentive, responsibility, or commitment, often linked to dual roles of owner and user, e.g. in cooperative housing (Van Opstal et al., 2025) or private product ownership (Ackermann & Tunn, 2024). Competitiveness**,** tied to private ownership and market forces that drive innovation and affordability, but also to the commitment of public ownership forms (SOEs, MOCs, GOEs) to broader social and sustainability goals. Transformative potential (Beemer et al., 2025). Flexibility and adaptivity (Poshnath et al., 2025).

Sectoral studies illustrate how these values play out: Positive Energy Districts (Casamassima et al., 2022) reveal the interplay of economic viability, social equity, and environmental integrity; Mobility-as-a-Service frameworks (Smith & Hensher, 2020) underscore the role of ownership in enabling collaborative innovation.

4.2 Values Across Ownership Forms

The literature associated distinct constellations of values with different ownership arrangements.

State ownership**:** State actors are not monolithic but simultaneously drive and inhibit transitions (Tyce, 2025). SOEs often have stronger financial resources and policy support (Ren et al., 2025; Yang et al., 2025), but also face risks of rent-seeking and elite capture.

Individual private ownership is linked to autonomy and responsibility (Salman & Claassen, 2018; Ackermann & Tunn, 2024), often tied to identity and private space (Beemer et al., 2025).

Private enterprises face resource constraints and policy uncertainty (Ren et al., 2025; Yang et al., 2025), and landlords' retrofit decisions are often financially rather than environmentally motivated (Lang et al., 2022).

Cooperative ownership**:** Seen as a "third way" between state and market, reflecting values of responsibility, community independence, and long-term planning (Beemer et al., 2025; Van Opstal et al., 2025). However, cooperatives face challenges of limited diversity, fragile finances, and reliance on volunteers (Beemer et al., 2025).

Community ownership (energy communities)**:** Associated with autonomy, empowerment, and equity (Peeters et al., 2025; Santos et al., 2025). Yet they face financial barriers, governance challenges, and difficulties reaching marginalized groups (Hanke et al., 2021; Peeters et al., 2025).

4.3 Value Tensions Across Ownership Forms

The literature highlights recurring tensions:

Economic vs. sustainability: e.g. mobility cooperatives' income tied to kilometers driven (Beemer et al., 2025). Economic viability vs. energy justice: balancing affordable access with financial sustainability (Oemmelen et al., 2025). Public mandate vs. commercial performance: tensions within government-owned enterprises (Meelen & Sluijs, 2024). Shared use vs. autonomy: sharing models reduce consumption but can undermine autonomy and product care (Ackermann & Tunn, 2024; Jiménez Encarnación et al., 2025). Long-term vs. short-term**:** SOEs and GOEs often take a longer-term perspective, while private actors may act more quickly, depending on context. Localness vs. scale**:** cooperatives foster community values but struggle with scalability.

These findings reinforce that no ownership form is inherently just or sustainable. Each embodies specific trade-offs that must be evaluated in context.

4.4 Additional Findings

Three cross-cutting insights emerge:

Unclear terminology and normative biases: Ownership concepts are often used inconsistently, especially regarding energy communities, where performance assessments are vague or assumption-driven (Peeters et al., 2025).

Hybrid and diversified ownership forms: Complex, layered arrangements (e.g. in underground infrastructure) complicate planning and renewal but can enhance functional outcomes when governed systematically (Yu et al., 2025).

Governance context and psychological ownership: Outcomes depend not only on legal structures but also on policy environments (Chen et al., 2025; Yang et al., 2025) and on subjective experiences of ownership. Psychological ownership enhances responsibility and care (Salman & Claassen, 2018; Ackermann & Tunn, 2024; Patrick & Eddy, 2025).

4.5 Synthesis

Taken together, the literature emphasizes that ownership arrangements are not neutral but mediate sustainability-related values and tensions. Their contributions to sustainability transitions depend on context, governance, and subjective experiences as much as on formal legal structures. This underlines the need for analytical tools—such as the proposed ownership assessment framework—that disentangle normative assumptions from objective characteristics and clarify governance trade-offs.

5. Value-based ownership assessment framework

Our value-based systematic literature review of strengths and weaknesses and governance tensions of different ownership forms shaped the development of our ownership assessment framework.

List of questions to investigate the precise ownership form, based on legal characteristics and governance aspects (how big is the organization, management characteristics, etc.). And a list of questions to investigate which values are prioritized by the owners/a specific ownership form. Based on values and value tension list.

We work towards a non-overlay spider/radar chart. This offers a segue to ongoing and future empirical research: we have an outline of value tensions split out in terms of ownership based on the literature review that we can use to map research cases.

6. Conclusion and discussion

The framework can inform how to achieve certain public values, what ownership form or constellation can be chosen for what results? A closer, more precise and unbiased look at the role of ownership in sustainability is required to inform a deeper understanding of governance tradeoffs in transitions.

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Walking as mobility of care in a Mexico City's peripheral area. Opportunities and inequalities.

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Abstract.

This paper focuses on the pedestrian care mobilities of inhabitants from low-income neighborhoods located on the periphery of Mexico City. The study highlights the essential role of these mobilities in constructing the neighborhood as a social space, where residents find and create resources to sustain their lives. Walking practices intersect with a wide range of other activities such as street vending, neighborhood politics, and the maintenance of local social relationships. Walking routines thus foster connections among residents and contribute to the building of a local "social infrastructure." However, walking is an activity shaped by significant inequalities. Security issues make walking conditions particularly difficult in these areas, requiring the development of place-based knowledge and adaptive skills. Drawing on ethnographic research involving in-depth interviews, mental maps, and pedestrian journeys with residents, the paper explores the tactics and strategies employed by female residents in the activity of dwelling, through their everyday walking practices.

Introduction

From the 1950s onwards, the urbanization front reached the former village of Santa Lucia Chantepec, in the southwestern fringe of Mexico City. This hilly area began to fill with cinderblock houses, forming the dense and gray urban landscape that characterizes the city's low-income peripheries (Figures 1 and 2). Rural migrants from other parts of the country, residents of overcrowded peri-central neighborhoods, or people displaced by the authorities gradually settled there. This mode of settlement remains the main driver of Mexico City's urban growth (Valette, 2014), and the construction of ever more distant peripheries away from metropolitan centralities has led to significant socio-spatial inequalities.

Figure 1. and 2. Santa Lucia's neighborhoods, photograph taken by the author, august 2023.

The unequal connectivity of low-income peripheries to the public transport network compels residents to rely on complex mobility arrangements. This is the case for the residents of the Santa Lucia neighborhoods, whose mobility depends on minibuses (Figure 3) operating under a paratransit model (Salazar Ferro, 2014), but also heavily on walking. Walking is the most common mode of transportation in Mexico City (SEMOVI, 2020). It is strongly shaped by gender and social class: women from lower social classes are the group who walk the most (Pérez & Capron, 2018; Soto, 2024). Despite its centrality in everyday mobility practices, pedestrian mobility remains undervalued by public authorities. The lack of dedicated infrastructure and the dominance of cars make walking in Mexico City exhausting and dangerous (Pérez López, 2015) especially in peripheral areas (ibid).

Figure 3. Microbus in Mexico City, photograph taken by the author, April 2021

Since half of Mexico City's population works in the informal economy, the city's sidewalks are hybrid spaces where pedestrians must constantly negotiate their presence with street vendors and other users of public space (Capron, Monnet, & Pérez López, 2022). Walking in Mexico City also entails exposure to urban violence, which is more intense in low-income neighborhoods (Alvarado, 2012). For women, this includes gender-based violence, often forcing them to restrict their movements (Lindón, 2020; Soto, 2019).

In the low-income neighborhoods of Santa Lucia, built on hillsides, walking is physically demanding. Residents have to navigate labyrinthine alleyways, climb poorly lit stairs at night, and walk along damaged sidewalks and streets. The high building density leaves no room for vegetation, and the landscape is starkly mineral. However, walking also involves encounters and forms of sociability that can take on a positive and meaningful character. It is part of the social life of markets, greetings to street vendors, conversations with neighbors, church meetings, informal gatherings at local shops, etc. These interactions can also be sources of tension, but they play a fundamental role in building neighborhood ties and, more broadly, in constructing the neighborhood as a social space.

Numerous studies have explored how different types of social ties are formed, maintained, or dispersed in urban spaces (Burgess & Park, 1925; Hannerz, 1980; McKenzie, 1970; Oldenburg, 1999). Recent work by Talia Blokland (2017) has shown that the repetition of everyday practices and micro-interactions contributes to the formation of a shared intersubjective space, regardless of the strength of social ties: it is primarily the regularity of these ordinary encounters that fosters a sense of familiarity and allows people to feel comfortable in places. In this respect, walking, as a mobility practice that brings people into co-presence, deserves attention. Several studies have already examined the role of walking in shaping urban sociability (Aguilar, 2016; Battista & Manaugh, 2018; Middleton, 2018). Walking immerses the subject in an environment in all its dimensions—material, social, symbolic, mnemonic, etc. (Avilés, 2020; Martínez, 2019). Yet in unfavorable contexts, where public spaces are deteriorated, unsafe, or rife with conflict, walking can also become a practice of social avoidance and sensory withdrawal (ibid).

In this paper, I aim to explore an often-overlooked dimension of pedestrian mobility, particularly in marginalized urban peripheries: that of the "mobilities of care" (Sánchez de Madariaga, 2016). Numerous studies have shown that care-related mobilities—which are rarely considered in public policy—follow specific spatial logics (Sánchez de Madariaga, 2016; Soto, 2024; Valdivia, 2018): these trips are often shorter and stay closer to home than work-related commutes, more frequent throughout the day, and rely heavily on walking. In Mexico, and especially in low-income areas, these mobilities are largely carried out by women (Soto, 2024). They face numerous barriers in their movements, related to public transport limitations, poor urban planning, and high levels of insecurity (Lindón, 2020; Soto, 2024).

Yet care mobilities play a crucial role in building social life within low-income neighborhoods. As we will see, they are one of the pillars of a "social infrastructure" (McFarlane, 2021; Simone, 2004) of proximity, essential for accessing urban resources and improving living conditions. We will also see that the many mobility barriers affecting women and care-related activities hinder the formation and maintenance of this "social infrastructure." This raises two central questions: How do care mobilities contribute to the social construction of the neighborhood? And how do their limitations erode the social fabric?

First, I will present the key issues surrounding care mobilities in a peripheral and low-income area of Mexico City, within a context of physical distance from urban resources and severe mobility constraints. Second, I will show that these mobilities play a fundamental role in the social construction of the neighborhood and in the improvement of residents' living conditions. Third, I will argue that the

numerous barriers to these mobilities threaten the social ties that sustain local communities. Fourth, I will argue that maintaining these ties requires specific efforts and skills from the women performing the mobilities of care. These skillful practices not only enable mobility but also continuously recreate the fabric of the neighborhood.

Research Methodology.

This work is based on a three-year ethnographic study conducted during my doctoral thesis in urban studies, which I defended in September 2025 at Gustave Eiffel University. The concept of dwelling (Giglia, 2012; Ingold, 2000; Stock, 2015), which held a central place in my work, was both a research theme and an element of my ethical approach to fieldwork. By living for extended periods in certain residents' homes, developing my own network of local acquaintances, and intensely engaging with the studied area, I developed my own understanding of the place. This "dwelling ethnography" was accompanied by various research techniques, including semi-structured and, in some cases, repeated interviews with more than 50 residents; participant observation in public spaces and in some "community-based" places, with the Santa Lucia social center being the most intensively observed; and accompanying many residents in their daily trips. I also asked some respondents to draw mental maps of their neighborhood based on their daily activities and personal representations.

These different methods were designed to complement one another, reflecting a desire to triangulate long-term observations and empirical data. This work involved building strong relationships of trust with residents, along with a gradual process of immersion and familiarization with the studied areas.

1. Mobility inequalities and peripheral settlement in Mexico City

In the 1950s, Mexico City's urban expansion gradually reached the agricultural lands of Santa Lucia. The paving of the road connecting the locality to the city made it possible for low-income families—who could not afford housing in closer, more consolidated areas —to settle there. The agricultural lands were subdivided and sold at low prices, sometimes illegally, to these households, who gradually built their homes and negotiated the arrival of basic services with the authorities. Initially, it was the availability of cheap land that motivated residents to settle in the area, but also the presence of relatives—some who had arrived earlier, others at the same time—which provided a foundation for building mutual aid networks.

The progressive urbanization of the area encouraged the development of minibus lines (known locally as *microbuses*), operating under a paratransit model, which connected the area to the municipally managed public transport systems. However, this also led to increased traffic, significantly lengthening travel times. *Microbuses* have the advantage of offering high frequency and serving isolated areas that the municipally managed networks do not reach, but they are slow and uncomfortable. The accessibility challenges faced by residents of this area lie at the intersection of several factors:

1. A geographically peripheral location, resulting from the housing constraints faced by low-income households;
2. A marginal position within public intervention (Auyero, Bourgois, & Scheper-Hughes, 2015), reflected in access to lower-quality public transport services;
3. A lack of resources to access alternative modes of mobility, making residents dependent on these second-tier transport networks.

Numerous studies have shown that in contemporary metropolises, marked by fragmentation and the increasing demand for flexibility, mobility has become a central element in the development and

reinforcement of social inequalities (Cresswell, 2006; Jiron, 2008; Kaufmann, Bergman, & Joye, 2004; Urry, 2012). Other research has also emphasized the gendered nature of these inequalities: women often have fewer mobility resources (such as limited access to a private car), face more mobility barriers (especially in terms of safety), and are temporally constrained by care responsibilities, which they disproportionately bear (Dyck, 2005; Gumy, Hosotte, & Schultheiss, 2020; Jirón, Carrasco, & Rebolledo, 2020; Pérez & Capron, 2018).

The social role of care work is particularly significant for women in Mexico: in 2014, women performed an average of 39.76 hours of unpaid work per week, compared to only 15.61 hours for men (National Time Use Survey, cited by Pérez Fragoso (2017)). Moreover, according to a report from the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), in Latin America, "women generally have lower incomes than men and work in low-productivity, less remunerative sectors. They are also overrepresented in poor households and in single-parent families" (Rico & Segovia, 2017, p. 26, author's translation) An intersectional approach (Jirón, Rebolledo, & Seaman, 2023) invites us to consider the cumulative effects of gender and poverty. In Latin America, according to ECLAC data, "women in the poorest income quintiles dedicate more time to unpaid work compared to those in the upper quintiles" (Rico & Segovia, 2017, p. 26, author's translation).

Mobility constraints in this peripheral area of the city contribute to reinforcing gender inequalities. The example of two interviewees, Marcelo and Leticia—living in different households—illustrates how men are trapped in long and exhausting commuting patterns, while women often have to give up employment because managing both mobility requirements and care duties proves too difficult.

Marcelo, a construction worker in his forties, explained to me:

"*For me, five in the morning is the departure time. No matter where you're going, it's always five o'clock. Why? Well, because that's the time when you can move quickly. Five o'clock—whether you're heading to Tacubaya or Mixcoac* (metro stations)*—by five-thirty you're already there. And from there, you can get anywhere… by seven, you're already at work. Seven, seven-thirty. Yes. But here, if you're lazy… if you only get up at six… no… no, here you have to get up early.*" (Marcelo, interview, August 2023, author's translation).

Leticia, a secretary in her fifties, told me:

"*I used to work in Constituyentes… and commuting from there to here… it was really hard. And honestly, I had to quit… because it was just too hard… because… we didn't… I didn't have a car, and on top of that I had two children, and they were still very young… so I had to quit for a while and I started working on my own… here."* (Leticia, interview, July 2021, author's translation)

Like many women in the neighborhood, Leticia had to develop small-scale, local income-generating activities. These are widespread in Mexico's low-income areas: small shops, street vending, informal stalls, home-based sales, and so on.

Giving up formal employment in favor of care work contributes to the economic vulnerability of women. In 2015, only 55% of women in Mexico City reported engaging in paid work, compared to 77% of men (Instituto Nacional de Estadística y Geografia (INEGI) 2015, cited by Pérez Fragoso (2017)). According to the principle of interdependent mobilities (Dureau, 2013; Jirón et al., 2020; Jirón & Mansilla, 2013), women's care-related mobility enables men's work-related mobility. This principle extends into broader "care chains" (Dyck, 2005), which reflect interdependent relationships shaped by gender, class, and often race.

Doña Clara is a widow. Her two daughters are single mothers who work as domestic workers and childcare providers for wealthier families, which requires them to travel to other parts of the city. Doña Clara is the one who looks after their children, takes them to school, and handles the household chores.

"*Because what they earn* (her daughters) *is really not enough to… pay someone else… and whatever I could contribute with my own work… would just go to pay that person… so it's simpler if I take care of them and stay here with them. They're safe because… well… I'm their grandmother, and I'm watching over them*." (Doña Clara, interview, May 2021, author's translation)

Care work thus plays a central role for women in this low-income area, and is often combined with micro-entrepreneurial activities as a way to supplement household income. These two types of activity are woven together within complex mobility patterns, largely based on walking. These routine pedestrian movements contribute to shaping the spatial experience of the neighborhood: they create systems of relationships, generate mutual familiarity, and foster informal networks of solidarity and support. In doing so, they form "social infrastructures" that compensate for the failures of the welfare state, the market, and public infrastructure systems.

2. Care mobilities, walking routines, and the construction of proximity

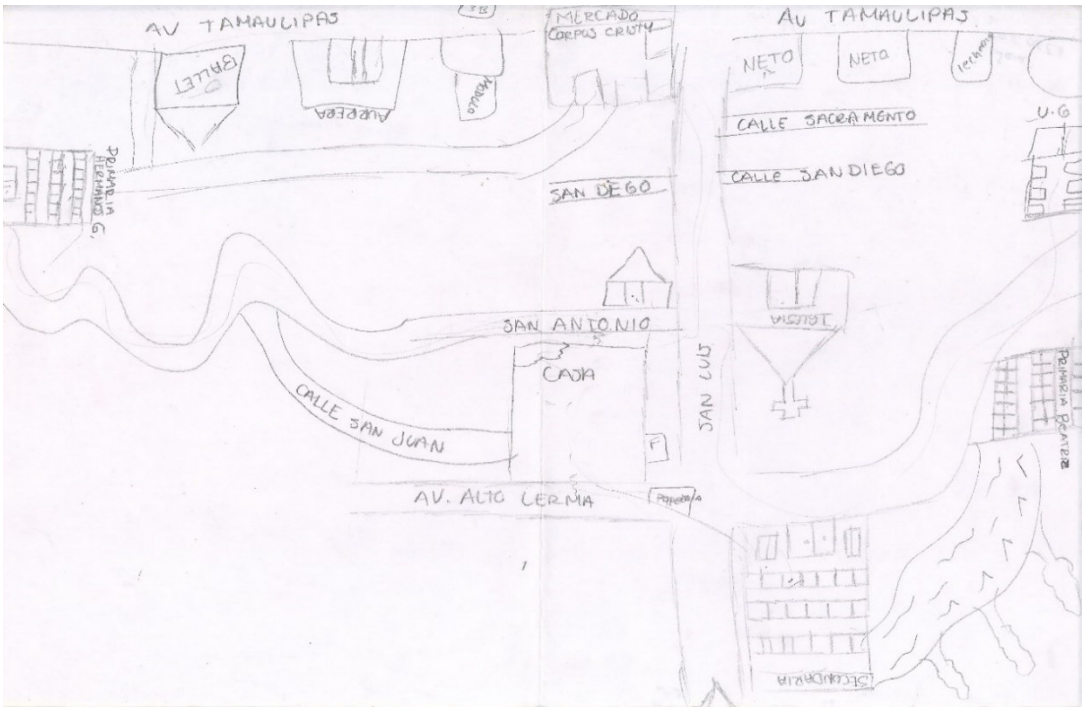
Noemi is under thirty. She lives with her mother, who works as a secretary in downtown Mexico City, her husband, a private driver, and their two children. Since both her mother and husband are away all day, she is responsible for managing the entire household, which involves numerous pedestrian journeys (taking the children to school and activities, running errands, paying bills, buying groceries, etc.). These routes are highly routinized, as they depend largely on external constraints (school hours, stores opening times, and so on). They form what Sánchez de Madariaga (2016) calls "polygonal spatial patterns," involving frequent returns home, where daily domestic tasks are performed (meal preparation, cleaning, hand-washing clothes for the entire family, etc.). Noemi's home is therefore at the center of the mental map (Figure 4) she drew for me (labeled *casa*). The map also includes other key locations in her daily movements (schools, the market, the social center, etc.).

Her journeys follow a sequential pattern, structured by daily tasks. Care practices are intertwined with productive activities that contribute to the household income: Noemi sells products from catalogs such as *Tupperware*, carries low-cost jewelry for sale, and also prepares and sells homemade gelatin desserts. She also participates in local clientelist political networks as a "leader": she is responsible for mobilizing residents for party-related political events (demonstrations, election campaigns, etc.), for which she is paid by a political party.

These activities are intertwined with care responsibilities: she sells jewelry at the social center where she takes her youngest daughter to play, she promotes political events at the market or while waiting for her daughter to finish school, and so on. These activities take place while walking, or during intermittent pauses between pedestrian journeys. As a result, she often carries large bags, filled with her children's belongings and items for sale.

Noemi's pedestrian routines contribute to the production of the neighborhood as a social space. The synchronized travel patterns of mothers accompanying their children to and from school at set times provide a rhythmic backbone to the neighborhood's daily life. Around this basic rhythm, a wide range of activities unfold: street vendors set up outside schools to sell fruit or snacks to children, informal gatherings take place at the social center where mothers and other women meet after morning classes, and so on.

Figure 4. Map drawn by Noemi, June 2023.



The regular attendance at various places (schools, market, social center) as part of what Talia Blokland (2017) calls "durable engagements", rooted in everyday practices, contributes to fostering familiarity and the formation of social ties between residents. The presence of caregiving women in the streets at certain times of day contributes to public safety—following Jane Jacobs' "eyes on the street" principle (Jacobs, 1961) — by helping to deter delinquency and discourage the presence of drugs users in public spaces.

Care-related walking routines generate social ties, rhythms, and an intersubjective landscape that Tim Ingold (1993) refers to as a *taskscape*, shaped by residents' active engagement in collective practices. These ties form the foundation for building *social infrastructures* (McFarlane, 2021; Simone, 2004), which enable residents to cope with the precarious conditions they face:

"*We can think of social infrastructures as a practice of connecting people and things in relations that sustain urban life. It is made and held stable through repeated work. It is a connective tissue, anchoring urban life across the urban world, varying in form and content*." (McFarlane, 2021, p. 51.)

Many studies, particularly in feminist geography, have shown that the classical distinction between productive and reproductive spheres is not analytically useful (Soto, 2016, 2019; Valdivia, 2018). In Noemi's case, her walking routines give rise to social ties that simultaneously sustain reproductive care activities and contribute to the household income.

The social center, which she visits regularly, exemplifies the complexity of these intertwined roles: she can have her children watched there by another user of this place while running an errand, she builds her political client network there, and she sells some of her products. Her daily routes and the relationships formed along the way—even momentary ones, like a brief greeting—are part of the ongoing work of maintaining a social infrastructure that supports proximity-based social life. Street vendors, other mothers, women working at the market, etc. all form the relational base of this infrastructure.

Care-related pedestrian practices thus weave the social fabric on which the neighborhood is built. Religious activities, which are also mostly carried out by women, play a key role as well: the courtyard of the Santa Lucia church (Figure 5) becomes a hybrid space where the elderly come to chat, mothers watch their children play, and neighborhood news is exchanged. Through these informal gatherings—sometimes very brief—information is shared, advice is given, and ties are strengthened. All residents benefit from the results of these interactions: someone finds a job for her son or husband; a neighbor who owns a car offers to drive an elderly person to a medical appointment, and so on.

Figure 5. Mothers and children in the church's courtyard, photograph taken by the author, April 2023

Certain places play a key role in coordinating these pedestrian mobilities. Their organization, location, and spatial layout foster positive interactions among residents within the framework of care mobilities. This is notably the case of the Santa Lucia social center, where women meet and take a break between various tasks, and of the church courtyard, where they feel safe and at ease. More modest spaces, such as small neighborhood shops, can also fulfill this role. These places serve as nodes in the network of care mobilities, offering a brief pause, a moment to catch one's breath, or an opportunity for informal conversations.

The neighborhood as a social space—and the possibility of building social infrastructures that help residents manage daily life—is thus largely constructed through care mobilities. These mobilities rely on a web of social ties while simultaneously contributing to its development. This collective construction is also grounded in particular places and material configurations. However, this network of ties is never guaranteed, and the neighborhood is not solely a space of positive interaction. It is also a space of conflict, division, and rupture.

3. Barriers to pedestrian mobility and the deconstruction of the neighborhood

The failures of public policy in low-income neighborhoods are at the root of many problems faced by pedestrians. These are of various kinds:

- Spontaneous and unplanned urbanization, as well as the lack of high-quality public facilities, render walking both difficult and, at times, dangerous: sidewalks are absent or uneven, street crossings are hazardous, streets are poorly maintained and lit, etc.
- Normative control of public space by the authorities is weak in the low-income peripheries of Mexico City. Official rules governing the use of urban public spaces are applied to a lesser degree there, and often in a discretionary manner. Uses of public space are then organized through negotiated modes between different actors (Capron et al., 2022; Duhau & Giglia, 2008), whose capacity for action is unequal.
- The surge in urban violence since the 1970s, the lack of trust in the authorities to deal with it, and the low consideration by authorities of safety needs among poorer classes (Alvarado, 2012) create a persistent climate of insecurity and uncertainty.

These constraints particularly affect care mobilities, generate inequalities among residents, and often foster the emergence of conflicts.

Infrastructure deficiencies particularly affect elderly residents, who face difficulties moving around in streets with absent or uneven sidewalks and inadequate public lighting. Women who accompany young children or carry shopping bags are strongly affected by these obstacles. Doña Clara, who is elderly, has health issues and is responsible for her grandchildren, tells me:

"*Besides, sometimes cars are parked on the sidewalk, and you have to get down, and when you accompany the children, well, what danger we run! Or that… there are small places that are very hidden, so that's where… many times they mug you, so many times walking… I don't, for that reason… lately, it's gotten really bad… that they rob or that they mug you, right?…*" (interview, May 2021, author's translation).

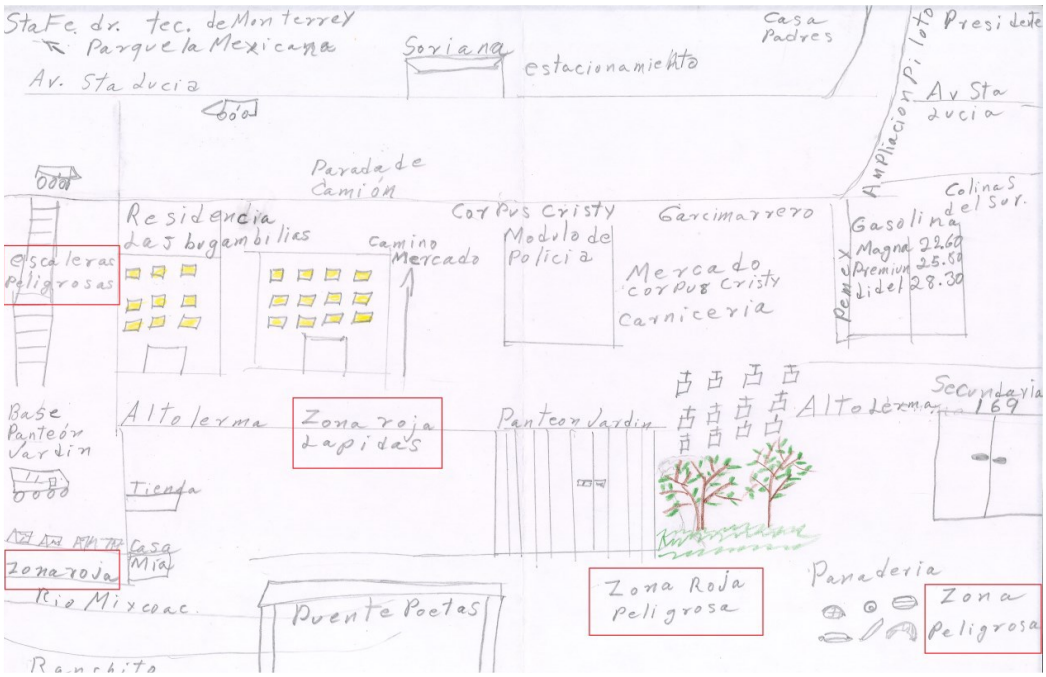
The negotiated order of public space use (Duhau & Giglia, 2008) also shapes care mobilities. In a context of limited access to metropolitan resources, neighborhood streets become substitute spaces for many activities that may conflict with walking: the absence of leisure spaces and limited access to consumer markets are compensated by male-dominated gatherings–sometimes accompanied by alcohol consumption-in stalls, small shops, or on the sidewalk. The lack of sports infrastructure is addressed through playing football in the street, while unemployment is offset by street vending. As a result, the street becomes a versatile space where eating, working, playing, drinking, and storing bulky items all coexist. It becomes a "hybrid space" where "different forms of production and construction of space mingle, not only between the formal and the informal, but also between public and private, between the mobile and the stationary, between residential and commercial, etc." (Capron et al., 2022, p. 6, author's translation). The stalls of street vendors, which also play an important role in sociability, access to consumption for households, and street surveillance, also hinder the practice of walking:

"*Here there are so many stalls that you can't pass… really, really many. We pedestrians, we can't use sidewalks, because all the stalls have appropriated the space. So we are forced to step down into the road, even though it's a dangerous area, we have to go down because of all those stalls!"* (Doña Dolores, interview, June 2021, author's translation).

In the absence of widely accepted rules governing the use of public space, violence often emerges as a mechanism for regulating conflicts (Auyero & Berti, 2013; Moctezuma, 2023), but residents do not all have the same capacity to make use of it. Fear of violence also expresses itself in the apprehension of thefts and assaults. The presence of drug-dealing zones, the poor lighting of some streets, the labyrinthine nature of the streets that creates hiding places for assailants, and the low police presence

all contribute to insecurity. Doña Dolores' mental map signals many areas considered "red zone" (figure 6), that is, dangerous, to be avoided.

Figure 6. Map drawn by Doña Dolores, march 2022 (red markings were added by the author for illustrative purposes).



These multiple barriers are even greater for women and for the most vulnerable residents, such as the elderly or children. They contribute to fragmenting the neighborhood, fostering distrustful relationships and the construction of symbolic boundaries: some residents (recent arrivals, youths perceived as "suspicious," etc.) are labeled as dangerous or problematic; entire areas are avoided, and their inhabitants are held responsible for real or perceived insecurity. Fear contributes to the deconstruction of the neighborhood and the erosion of "social infrastructures." Avoidance and distrust become essential protection mechanisms.

The practice of walking thus crystallizes the tension between proximity relations characterized by positive interactions and those marked by conflict and avoidance. In the experience of walking, the inherent vulnerability that results from immersing the body in diverse urban environments contributes to loading this tension with strong affective intensity. Care mobilities are particularly critical here: on the one hand, they play a major role in shaping relationships of proximity; on the other hand, they are especially impacted by the constraints associated with copresence. Maintaining these care activities, and the social infrastructure they build, thus requires constant negotiations and adjustments which weigh upon daily routines.

4. The relentless labor of neighborhood construction

Material constraints, neighborhood conflicts, and the experience of fear in low-income peripheries contribute to the fragmentation of proximity. They hinder the possibility of building and maintaining social infrastructures. The challenge of care mobilities is therefore to sustain these essential infrastructures despite dynamics of fragmentation. Pedestrian mobilities thus play a role in stitching together fractured urban spaces and social ties. This operation relies on a genuine practice of dwelling and requires continuous effort and the mobilization of place-based knowledge.

Numerous studies have highlighted the importance of situated skills in residents' capacity to inhabit urban spaces (Jirón Martínez, Lange Valdés, & González Pavicich, 2020; McFarlane, 2021; Sennett, 2019; Simone, 2004). In cities of the Global South, where socio-spatial fragmentation logics are extended by incomplete public services, urban facilities, and social policies, residents must invent ways to connect the different fragments (McFarlane, 2021).

The social skills of walking are acquired through the repetition of daily practices and are transmitted and learned, notably within the family sphere through care mobilities. Walking with a relative is then a learning time for situational attention modes, routes, the ability to recognize dangers, ways of socializing with others, and the capacity to read implicit rules guiding the use of urban spaces. The work of dwelling is thus built through the repeated use of a place with others; it also takes shape through the copresence and mutual attention of different actors in daily interactions (Ingold, 2000). The situational demands of interactions in a difficult urban context imply constant adjustments to the environment and its variations. Among the multiple skills of dwelling, some stood out repeatedly in the investigation.

The first concerns familiarization: the repeated use of places, within the frame of recurring routes, allows the construction of a deep knowledge of the environment and the micro-variations that may occur there. The same place can be dangerous at one time of day but safe at another; from one street to another, factors of danger and safety can vary. But familiarization also operates in the other direction: one must become familiar, take place in the social space of the neighborhood, be recognized by others. These two logics intertwine:

"*Actually, if you… if you know the neighborhood, you know where you can pass and where you can't. Uh… generally, your neighbors identify you. I mean, well, maybe I don't talk to her, but I know her, right? I know she's so-and-so's daughter, or so-and-so's daughter-in-law. So, they don't cause you trouble*." (Maria Dolores, interview, July 2023, author's translation)

The capacity to take a place in the neighborhood's social space implies the work of constructing a public image, a facework (Goffman, 1959), an essential skill of self-presentation. In the studied area, greetings play a crucial role: the civil effort to greet neighbors often requires adopting a mask of civility (Sennett, 2019), which involves not to dwell on social differences or disapproval of certain practices.

"*At the street corner, they sell drugs. All day long, from 6 p.m. to 6 a.m. And honestly, I pass by and we say: 'Hello, Madam' 'Good evening'… I have already passed by at 5 a.m., at 3 a.m.*" (Carmela, interview, August 2024, author's translation).

The repetition of these micro-social contracts, in everyday interactions, grants residents a feeling of legitimacy to inhabit the neighborhood space, a source of self-esteem:

"*That's what I'm telling you, it brings me a lot of satisfaction, for example, to be able to enter a place and be greeted, to be known… I mean… just that, for me… it's very pleasant*." (Luciana, interview, June 2023, author's translation).

Through care mobilities, women thus play an important role in building urban civility in the neighborhood. This does not imply that only women's mobilities, or mobilities related to care, foster civility, but the importance of these activities and women's greater vulnerability in public space imply a greater necessity to build harmonious local relationships.

Conclusion

In this paper, the neighborhood is not approached as a space frozen in time and place, nor as a community space, but as a dynamic, plastic space subject to logics of consolidation and division. The neighborhood only exists through the ongoing action of neighboring, which involves constructing a shared space across differences. The act of neighboring is enacted through daily practices of dwelling and relies largely on care mobilities and the daily interactions they enable. These mobilities are constantly facing barriers linked to the shortcomings of public action and strong socio-spatial inequalities present in Mexico City. Within care mobilities, inhabitants of low-income peripheries perform this essential work of stitching together a continuously fragmented space. They contribute to consolidating a vital social infrastructure to cope with the difficulties of existence faced by residents of this urban margin.

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Conference paper

Active mobility transformations and population ageing

This contribution synthesises the findings of a recent research project that explored the intersection of population ageing and active mobility transformations in tourist cities. Using a qualitative methodology that combined in-depth interviews with "go-alongs," the project investigated how older adults navigate urban spaces on foot and by bicycle, and how they experience and negotiate the dynamics of tourism-centred urban environments. It adheres to the growing recognition that older citizens should be able to play an active part in urban and transport planning and decision-making, following a rights-based approach and consequentially to the parallel developments of population ageing and increasing urbanisation (Menezes et al., 2021).

The paper brings together two important and emergent bodies of research that critique the equity around transformative (transport) planning measures. The first one, coming from geography and urban planning disciplines, observes that cities undergo a range of material changes that intend to address a range of challenges such as climate change mitigation, pollution, road danger, etc. Notwithstanding different degrees of political and/or societal backlash, mobility policies and strategic measures usually aim to reduce or calm motorised traffic, promote active travel, or otherwise decrease the negative externalities from the transport domain. However, without prioritising social equity in such initiatives, it is unlikely that socially vulnerable residents may benefit from transformative and tactical interventions, for instance while engaging in mobility, using public spaces, or when accessing housing (Anguelovski, Honey-Rosés & Marquet, 2023). This shortcoming echoes earlier occasions of when deeper political, historical, or public participation issues were ignored in mobility planning, such as occurrences of racism, gentrification, and historical segregation around transport developments that may hinder

present cycling infrastructure development (Lubitow & Miller, 2013). In another instance, the display of techno-centric, 'apolitical' understandings to cycling infrastructure and traffic calming may fuel resistance against changing mobility cultures and urban sustainability and greening initiatives (Marquet et al., 2024; Wild et al., 2018).

Second, the composition of cities' population structure itself has been profoundly changing in recent years: in OECD countries, the share of those aged over 65 increased from 9% in 1960 to 17% in 2010 and is expected to reach 27% in 2050. Institutions such as the World Bank have signalled that "the simultaneity of the demographic transition, deepening urbanisation, a technological revolution, frequent shocks brought on by health and climate emergencies mean that we need to plan for an older and more urban future" (Das et al., 2022). While cities may be places of proximity, functional density, and ample mobility options that would support lifelong urban living, they may also produce feelings of insecurity, widening economic and social inequalities, instabilities following gentrification and regeneration, etc. Despite the growing importance attributed to urban environmental parameters in ageing and social gerontology studies (Buffel & Phillipson, 2024), the concerns that contemporary transformations –in the mobility sphere and beyond– are limiting accessibility, usability and/or social inclusion in later life do not seem to be at the centre of urban mobility debates.

In response to this gap, in this paper I aim to explore in what way active mobility transformations can play a more inclusive role in addressing emergent concerns around population ageing and urban accessibility over the lifecourse. After all, walking and cycling are forms of mobility that are particularly conducive to prolonging mobility, wellbeing, and social and health opportunities in later life (Oja et al., 2011; Van Hoof et al., 2021). My empirical work on these topics unfolds in cities that also grapple with an ever-growing appeal to international tourism, in this way opening up the topic of age-friendly urban mobilities to the tourism dimension. Essentially, as in many larger or historic cities, urban tourism constitutes an additional layer of mobilities – intense and concentrated movements of people, vehicles, goods and supplies – that intersect, negotiate, and enmesh in urban space with resident communities, and that create new mobility performances and exclusions (Den Hoed & Russo, 2025; Sheller, 2018).

Cycling in later life: case Barcelona

Against this background, my first case study focuses on older residents' mobility practices as they negotiate urban spaces by bicycle, with the aim to clarify 1) how older adults engage in sustainable urban mobility in an emergent cycling city; and 2) whether and in which ways tourist mobilities act as additional barriers to the promotion of inclusive active mobility. To this end, I undertook a mixed-method fieldwork with people aged 60 and over in the city of Barcelona, Spain. The recruitment process took an all-city approach, but led to a response of 21 people living in or habitually travelling through the tourist centre of the city. The total of 37 participants, aged between 60 and 88, originated from all but one city district and included people of different degrees of cycling experience and current uptake. With all participants, I first held semi-structured interviews about the following topics: the adoption of different transport modes over the lifecourse; the opportunities and hindrances associated with urban mobility in the past,

present, and those foreseen for the future; and the extent to which the spatial context of the city affected the practice and experience of cycling. Based on their further availability, 14 participants then took part in a ride-along interview on a usual journey around the city to observe participants' bodily movements and experiences when cycling in and interacting with the urban space. The rides were audio and video recorded using a clip-on microphone worn by the participants and an action camera mounted on the handlebars of the cycling researcher. Finally, the study ended with two rounds of focus groups to which 15 of the interviewees participated, in which the aim was to pool and discuss the shared motivations and barriers that arose from the earlier research activities.

Together, the transcriptions and observational notes from interviews, ride-along videos, and focus groups were entered into the qualitative data analysis software ATLAS.ti. Using thematic analysis, the data were categorised into codes and organised in relation to the two analyses performed on the dataset: one that addressed cycling uses and experiences, the mobility biography, infrastructural barriers, and cycling's 'qualities' in later life; and one that involved the tourism dimension and included expressions of city and neighbourhood change, mobility routines and experiences in the tourist areas, and effects of direct encounters with tourist mobilities.

The study in the Catalan capital unfolds in a city that has created an extensive cycling network over the last 15 years, although this hardly led to change in the marginal uptake by people of older ages (Ajuntament de Barcelona, 2025). The mobility biographies of older adults from different cycling experience levels highlight a range of hindrances and misconceptions regarding cycling in later life. Although the substantial improvements of the cycle network are recognised by those already cycling, participants ultimately rely on ingrained skills and capacities and an active pursuit to include cycling in everyday mobility patterns. In that sense, the lack of full network connectivity, coherent and legible design, and metropolitan links still reduce the decision to cycle for a given journey, the uses or purposes for which to cycle, or its durability over time. These barriers are reinforced by the (motorised) transport environment coined as 'overwhelming' and which intrudes into dedicated cycling spaces (c.f., Dowling & Simpson, 2013). More specifically, motor vehicles hinder cycling through their manoeuvres (turning, parking), reducing safety perceptions while riding in spaces declared as cycling infrastructures, as well as through their space claim and noise and air pollution.

Consequently, while cities may improve cycling facilities overall, their lack of quality and connectedness does not make cycling a safe, physically moderate, and convenient mobility option for older ages – earlier coined as symptoms of an "unfinished cycling city" (Den Hoed, 2024, p.14). At the same time, the analysis also highlighted a number of qualities that support positive ageing, a potential that would remain untapped if cycling were not to make the step from being an 'emergent' to a 'mature' transport mode in an inclusive way (Félix et al., 2019). The participants frequently highlight cycling's health and wellbeing benefits, positioning it as a way to maintain the connections and activities they currently undertake at the city level. Importantly, their cycling is also a way to distract from stress and grief, to improve perceptions of security and

self-confidence, and to stay 'in touch' with people, places and memories they have built up over time (see Den Hoed, 2024 for a more detailed elaboration).

However, it is clear that in the current *modus operandi*, interventions to improve cycling barely improve the inclusion of older adults into the cycling population. Aside from infrastructural design shortcomings, a possible explanation may be sought in the way (now) older adults have inserted and normalised their cycling in everyday mobility patterns. This process often spans many years, relying on childhood memories and experiences, short-lived periods of cycling, or adaptations to the materialities of the bicycle (folding, electric bikes), in which participants continually relate themselves to their everyday arrangements, social norms and their own bodily ability. Prompts to start and stop cycling relate to age and health-related events, trigger points in the urban environment (indeed, the building of cycle lanes or implementation of a shared bicycle system), but also to more incremental processes such as considering cycling as feasible and safe in relation to other transport options or the pursuit of a 'pending issue' to challenge oneself after retirement. For cycling's normalisation as an all-age activity, both 'normalistic norms' – externally imposed social rules that affect (mobility) behaviour – and 'normative norms', which create normalisation through natural, emergent processes are thus pivotal (Manderscheid et al., 2014; Muñoz et al., 2016; Winters et al., 2015).

Ultimately, the findings point to two parallel dynamics that work against improving the low uptake of cycling in older age and, by extension, at both extremes of the age spectrum. First, cities usually withhold from making the necessary interference in (motorised) mobility spaces that would make cycling safe, physically moderate, and convenient enough to make it a durable mobility option in later life. In other words, kilometres of cycle lane do not guarantee inclusive cycling growth, while its design inadvertently ab-normalises its usage among certain population groups (Aldred et al., 2016; Freudendal-Pedersen, 2015). Second, a wider lack of social normalisation of cycling across the lifecourse seems to reproduce a *kind of cycling* that relies on physical and cognitive effort, is exclusively utilitarian, and narrows the infrastructural features that would underlie a socially inclusive and ecologically progressive mobility transition that counts on older citizens as active agents in urban change processes (Menezes et al., 2021). As many low-cycling cities are seeking to become more cycle-friendly (Félix et al., 2019), it is particularly crucial to understand the mobility trajectories and the social, spatial, and sensory experiences in which these cycling-oriented transformations are supposed to be adopted.

Based on the same case study, I now turn to the progressive touristification processes in the city as they were experienced by those living in or habitually moving through Barcelona's tourist core. While the tourism context of the city and the dimensions of cycling infrastructures in this area are documented in Den Hoed & Russo (2025), I want to highlight the analytical theme that relates most to the complication of active mobility practices to endure into later life. When riding on cycle lanes, participants recurrently mention unsafe situations, obstructions, or encroachment of pedestrians and tourist-transporting vehicles. The many narrower, shared streets in this area also generate a sense of overcrowding, encounters with tourists on (rental) bikes or e-scooters, and distracted behaviours or violations of traffic rules when riding in groups. In summary, this finding indicates how Barcelona's aspirations as a cycling city are curbed by its urban tourism

condition, which progressively annexes (new) active mobility infrastructures and spaces that are precisely designed to reduce frictions between different road users. Importantly, these interactions still occur on the margins of the automobility system: tourists and residents' mobile activities largely unfold in the same spaces, i.e. away from the vast squares and roads dedicated to motorised transport around the old town (*Ciutat Vella*). It results in a diversity of crowds, crossings, flows, speeds, routes, and rhythms that are forced to coexist.

Walking in later life: case Venice

The exploration of the implications of contemporary urban transformations for older populations' access to active mobility continues in the historic city of Venice (Italy), a longstanding example of a touristified locality. However, in recent decades, tourism arrivals have reached unsustainable levels and have substantially reduced the liveability in all of its districts (*sestieri*). Crucially, the historic city's stable population has dwindled from 175,000 in the mid-20th century to less than 50,000 in 2019. The remaining population is progressively ageing, having largely lost adults of employment age and households with children. Its combined environmental vulnerability, regional economic restructuring, and pervasive processes of touristification and heritagisation have led to a well-documented account of what tourism can do to a city in terms of resource extraction and capitalisation on all its material and environmental assets (Cristiano & Gonella 2020; Salerno 2022; Salerno & Russo 2022; Seraphin et al. 2018; Van der Borg, 1992).

What is less straightforward to study, however, is the way in which Venice is also an inherently hegemonic walking environment, perhaps with additional movement by small boats. While walking is a fundamental dimension of residents' everyday lives, tying together patches of land and connecting relatively autonomous hyper-local communities, it is also part of the experience that visitors seek for: 'untouched' heritage spaces, buildings, bridges, streets, squares, etc., which thus simultaneously become walking infrastructures for tourists and attractions in itself. Therefore, this paper's second case study is built on the diagnosis that exclusion risks in tourist cities have rarely centred on the mobilities of 'those still there' while, at the same time, unveiling the immobility that even the most walkable environments may produce. Although Venice's walkability can be criticised from an accessibility design viewpoint (Gorrini & Bertini, 2018), its high density, mixed urban functions, and absence of motorised land traffic offer a series of infrastructural and morphological features that promote outdoor walking, prevent poor health, and foster healthy ageing opportunities (Van Hoof et al. 2021).

To approach the walking experience of 'those that remain' and age in Venice's historic centre, I will analyse 15 walking interviews with lifelong or long-term residents, aged between 60 and 82, who took part in a biographical inquiry of their life and everyday mobility in Venice. They were prompted to walk habitual journeys to everyday activities, while the conversations consulted mobility practices and route choices, their changes over time, into later life, the changing social and material circumstances of the city, its navigability, and the space claim of tourism mobilities frequently occurring in this area. While the methodological framework and case study context are detailed further in Den Hoed, Tardivo & Russo (2025), the analysis presented here focuses on 1) the walking practices and place qualities that participants derive from walking; 2) tourism's

impacts on everyday mobility and living circumstances more widely; 3) negotiations and coping mechanisms against those impacts; and 4) ageing-related challenges in a slow mobility environment.

To start with, most participants derive a great sense of belonging from continuing to live in the historic centre. Their outdoor activities are largely done in an urban environment that they experience as familiar and convenient, tied together by walking trips on the web of streets, bridges, ramps, stairs, etc. that composes Venice's historic centre. They are also closely connected to water, as their walking routes are bordered or interrupted by canals and lagoon, and as water travel by public transport or privately-owned small boats forms part of some participants' everyday routes and/or leisure practices. In their walking routines, the participants find traces of the close-knit community that Venice once was and of the vivid neighbourhood life they got to know when they were younger, knowing which places to pass by to maximise the change of seeming a familiar face. They attribute value to the walking practice itself, sometimes taking detours or walk 'for the sake of walking', as well as to social relations and the local culture. Most participants take pride in their life in Venice, interchangeably mentioning relations to its glorious history, craftsmanship, culture, and rivalry with the mainland.

Nevertheless, the walking trips also reveal a surreal context in which the older participants walk faster than most 'strolling' visitors, take routes that weave in and out of multitudes of tourists, and find themselves surrounded by tourist-oriented cafés and shops. Many participants mention physical frictions with tourists, as they are unable to pass, experience dangerous or rude behaviours, or restrict their walking to the very essential trips or to the quieter zones only. The effects of these frictions are not restricted to walking patterns only, but have also arguably changed the material and social composition of their neighbourhood and the entire historic city. Socially and culturally, traditional meeting places have often become consumption spaces that fulfil tourist demands, which leads many participants to 'fence off' their social lives in small, closed circles or at local associations. In terms of housing, they see how the majority of flats are directed at tourist or short-term rentals, are renovated for this purpose, or are simply empty awaiting their absent owner (see Salerno & Russo, 2022 on the becoming of a 'short-term city'). Environmentally, participants share a variety of concerns that range from the pollution by cruise liners to wave damage caused by boats, their noise levels when mooring, and lacking investment in electric alternatives. Some also mention their anxieties about the sustainability of the lagoon following climate change and its intense usage for tourist purposes.

The walks through the historic city lead participants to share a general loss of urban functions, with many concrete examples of places (shops, studios, markets, cafés, bakeries, etc.) they can now only memorise. Similarly, commercial (quality) products or appliances are no longer available in the historic centre or when medical facilities, education, and services for domestic work or legal aid have either closed or moved to the mainland. Domestic support, for instance, is a particularly common service for older Venetians to age in place, helping to overcome difficulties to navigate the city, carry goods, climb the stairs, etc. While few domestic workers can afford housing in Venice, many family members and younger friends have often moved away too. The long travel times to access or exit the city, the gradual disappearance of formal and

informal care networks, and the increasing dependence on private expenses for basic health needs (services on the mainland, medical transport, but also healthy food), makes people question their future in the city: losing (even more) local friends and relatives, an injury, reducing fitness, or even a broken elevator or stair lift could easily escalate into a loss of independence and mobility opportunities.

The observations and conversations during the walking interviews thus bring up a series of structural changes to the city, to its spaces for social, cultural and commercial life, and sense a wider loss of public and private services. There are two crucial angles to this situation that impede the maintenance of (walking) mobility in later life. Firstly, the progressive loss of urban amenities and local social fabric leads to longer travel routes, less proximity functions, and a higher need for additional mobilities. This applies to residents themselves, who for instance need to travel further, prefer walking over the overcrowded ferries, or who have to take up care responsibilities in absence of formal and informal networks. Secondly, the connections between parts of the city that are most crucial for participants to traverse from their immediate neighbourhood to elsewhere in the historic centre (e.g. foot bridges, stairs, quays) are also the most crowded sites and tourist routes. Their passage is difficult, particularly when needing to take their time to get up or when relying on mobility aids such as a cane, wheelchair, or shopping trolley.

The embodied dimension of walking and the softer community elements studied here make clear how healthy ageing, safety, and walkability are compromised, even in an urban environment where walking is the dominant transport mode. Paradoxically, people may become 'stuck' in what is essentially a slow mobility environment, but where urban functions decline and where walking mobilities merely consist of well-beaten tourist tracks. As bodily capacities and resources to deal with, or avoid, this stuckness decrease, the structural hindrances to being a walkable place become even clearer. The largely absent of modernisation of the old houses, steps, bridges, cobbled pavements, and public transport – partly induced by Venice's heritagisation imperative to uphold its visitor image – amplifies their impacts on the mobility prospect of its remaining long-term population. The case of Venice's porous and (theoretically) walkable urban fabric illustrates the ambivalence of urban mobility transformations towards more walkability in otherwise hypermobile contexts. Instead, it favours spatial routines and uses of the city that are unattainable for population groups like older adults and may question the reproductive function of cities as a lived place where basic necessities are in reach for everyone.

Synthesis

My contribution investigated how older adults navigate urban spaces on foot and by bicycle in the face of transformations towards active urban mobility landscapes. Although walking and cycling undisputably have positive effects on the mobility opportunities, the health and wellbeing, and the social connectedness of the older adults partaking in the study, their equitable adoption is not unambiguous. In this project, I engaged with two urban transformations – cycling promotion and the expansion of (tourist) consumption spaces – as potential threats to age-inclusive mobility futures. The experience of cycling (in Barcelona, Spain) and walking (in

Venice, Italy) and the negotiation and 'forced coexistence' with the dynamics of tourism-centred urban environments show that new frictions and exclusions may emerge in a time of population ageing. For instance, longstanding mass tourism has progressively degraded the urban environment as place for long-term living, reducing access and proximity to amenities and, in Venice's case, halting accessibility measures in walking and public transport infrastructures. The expansion of tourist consumption spaces (touristification) is certainly not reserved to these two cities only while, importantly, it subtracts from the socio-spatial necessities for people to age in place. Whether it is socioeconomic status, physical or mental health, or social attachment that impedes older adults to relocate, this often-incremental transformation renders them stuck in place (c.f. Smith et al., 2018; Buffel & Phillipson, 2019 for the case of ageing and gentrification).

More structurally in the mobility and transport sectors, the combination of changes to the intra-city mobility regime and the ceaseless growth of international arrivals lead cities to grapple with an intensification of mobilities in place and time. Any effort to change this situation, regardless of cities' own mobility landscape, would have to address global power relations as to who moves where and at which volumes. Urban mobility policy and local tourism management choices thus operate in a dominant power arrangement where conventional mobility systems are taken over by tourist mobilities and, in places, are converted into tourist attractions themselves (Dileep & Pagliara, 2023). For cycling and aspiring cycling cities, the case of Barcelona shows that building cycling infrastructure cannot be a quick fix to a city's mobility issues (Spinney, 2017) nor is it enough to make cycling's benefits available to more than a narrow section of the population. While cycling's physical and social qualities are robust and potentially life-changing, its lasting usage relies on engrained mobility practices, deep local knowledge and physical capacities that reduce the possibility to maintain (actively) mobile in later life and narrow the transformational potential of present active mobility transitions. Its combined entanglement between incessant visitor attraction, now inhabiting the city's cycling spaces too, and the still-dominant automobility system shows that positively intended transformations may create novel hindrances for inclusive use of active mobility infrastructures.

My examination of bodily negotiations of structural urban change in this paper, as enacted in the everyday lives of older-aged residents, shows the imperative to prioritise urban qualities for all city users, away from the juxtaposition of active mobility in-between global flows and local (mobility, tourism) planning choices. Approaching their cycling and walking practices, experiences, personal perceptions, biographies and aspirations, and those of other marginalised urban populations alike, is a clear starting point for outlining a transversal all-age-friendly approach in academic debates and planning initiatives around active mobility transformations. In cities where touristification already complicates many aspects of urban life (Cocola-Gant & López-Gay, 2020; Freytag & Bauder, 2018), this study showed vital additional negotiations and scheduling strategies that older residents employ to 'stay put' in their city. They variously mobilise their voices or bodily affordances, lose emotional connection to the city, avoid certain times or routes, or decide to avoid the most concentrated areas overall (see Den Hoed & Russo, 2025 and Den Hoed, Tardivo & Russo, 2025 for further adaptive strategies). Both spatially and temporally, their everyday mobilities thus face a competition in which physical ability and

persistence define the option to take part in urban life and access commercial, social or other outdoor activities.

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Biography

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Scaling public transport beyond city centers: the role of express carpooling lines in complementing BRT networks

Thomas Matagne, Harald Confé Piquer, Marine Bruno

Introduction: towards a mobility transition for all territories

Context and motivation

The climate imperative makes mobility transition non-negotiable. In the European Union, the transport sector is one of the largest sources of greenhouse gas emissions and the sector has shown little progress in recent decades.

Among the various modes of transport, road transport is responsible for most of the sector's emissions, with the private car accounting for over 60%[1].

This situation is mainly related to a phenomenon of individual car dependency affecting all EU countries in significant proportions and which translates into a high level of motorisation in the EU-27[2].

There is a widespread belief that motorists choose to drive out of habit, comfort or a desire for social recognition. It is not the case for most EU citizens. Car dependency in the European Union is in fact massively linked to a lack of quality alternative supply, sufficiently extensive to cover all mobility needs. In fact, The European Commission estimates that 129 million European citizens live in areas with inadequate access to public transport services. It represents 30% of the EU population.

Yet, existing frameworks and investments are still heavily focused on urban cores where collective transport systems already work relatively well.

In dense urban areas, transport systems are successful because they combine several key factors. They benefit from sufficient passenger demand, which makes it possible to offer high service frequency. They also rely on redundancy and multimodal integration, which ensure both reliability and frequent service. Shared physical infrastructure plays an important role as well, as it reduces the space available for private cars and speeds up collective transport modes. Finally, interoperability and modularity enable seamless connections across the network, making the entire system more efficient and accessible.

However, outside of urban settings, because of the widespread use of individual cars, fl flows are weaker and more dispersed, making high-frequency services economically and ecologically unrelevant : traditional transit modes struggle to replicate at scale, trapped in a vicious cycle of low demand leading to low frequency, which in turn discourages ridership. Infrastructure in these areas is therefore designed primarily around the car, optimized for individual, door-to-door travel rather than shared stops or smooth modal connections.

Session context

This position paper responds to the call for recognizing **intermediate modes** as a missing ~~piece in dominant mobility tr~~ansition frameworks outside of urban settings.

[1]European Environmental Agency, *Greenhouse gas emissions from transport in Europe*, 2024.
[2]European Environmental Agency, *Passenger car ownership in Europe,* 2019.

Proposition

We argue that Express Road Services - combining express carpooling lines and express bus lines - could be developed as the backbone of a new system paradigm : Mobility as a Network (MaaN).

Mobility as a Network is the idea that the road can become a collective infrastructure whose aim is to transport people rather than vehicles. It is therefore a multimodal, scalable system, based on existing infrastructure, structured by nodes (shared stops and hubs), in which services are integrated to facilitate shared mobility.

In a nutshell, the core principle is to apply a network logic to mobility beyond city centers adapting the infrastructure and using shared vehicles of different sizes (from 5 to 500), operated and integrated into the collective network. The whole system is designed for interoperability and modularity: any vehicle can serve any node.

Research question

How can we build a viable and just mobility transition beyond urban density, combining frequency, reliability and rapidity ?

Central hypothesis

- The transition cannot be achieved by replicating urban public transport systems alone
- It requires a transformation of both services and infrastructure, with the private car integrated into a shared, multimodal network.

Express Road Services : extending the relevance of public transport beyond dense urban areas

What are Express Road Services ?

In recent years, following the example of Madrid, bus rapid transit (BRT) lines (or express bus lines) have been implemented in various European countries, providing concrete alternatives to solo car usage outside of city centers. Alongside the development of BRTs, carpooling rapid transit (CRT) lines (or carpooling express lines) have been jointly deployed in France, extending the geographical coverage of public transport and complementing BRT lines on similar road segments.

An express carpooling line operates like any other public transport service, with the distinction that available seats are provided by cars in circulation. Drivers take their usual route, they naturally pass in front of the stops, can signal their presence through an app and take passengers waiting on their way. For a passenger, the experience is similar to a high-service public transport, frequent and reliable. They go to the nearest stop, make their carpooling request on their app and wait for the first driver who stops. They then climb aboard and commute like in a bus.

Carpooling stop on a line located in the suburbs of Rennes, France.

The idea behind carpooling lines is to apply the principles of mass-transit services to the car, in order to transform it into a collective mode of transport to be able to structurally increase its occupancy rate.

Documenting synergies between express bus lines and express carpooling lines

Express Road Services offer valuable complementarities when they are planned and deployed together from the outset of a project.

Carpooling lines, first of all, help to extend network coverage in areas where travel demand is too weak to justify the implementation of a high-frequency express bus line. A carpooling line can be deployed as an extension of an express bus line - either feeding into it or distributing passengers toward employment areas in the first ring of suburbs for example, without requiring a detour through the city center. In doing so, it opens up new origin-destination pairs and can also serve intermediate stops that the express bus bypasses in order to remain “express” and avoid frequent stops.

The combined presence of an express bus line and a carpooling line along the same corridor enhances the overall quality of service for users. When an express bus line is not frequent enough, it can be reinforced by a carpooling line to increase the overall frequency. In case of disruption on the express bus service, passengers can switch to the carpooling line, and conversely, if no drivers are available on the carpooling line, users can fall back on the express bus service.

For transport operators and local authorities, deploying Express Road Services also makes it possible to match seat supply more closely to demand levels. For instance, during peak hours, adding an extra bus may be expensive; in such cases, a carpooling line can help manage passenger flows efficiently while ensuring that all deployed modes operate at high occupancy levels. Similarly, when demand is too high to maintain a good quality of

service with a single carpooling line, introducing an express bus becomes relevant. The same logic applies during the ramp-up phase of a service: it may be wise to start with a carpooling line, which can quickly achieve economic and environmental efficiency and support initial behavior change, before introducing an express bus line at a later stage.

Public authorities and public transport operators can also share operational resources between the two services, helping to offset certain fixed costs.

The potential and benefits of Express Road Services

Territorial Coverage Potential

According to the results of a study conducted by Ecov with and for Transport & Environment France and the Institut Mobilités en Transition-Iddri, the combination of regional rail (TER) lines, express bus lines, and express carpooling lines could significantly expand the territorial coverage of express transport services in France:

- 11,468 municipalities would be covered, compared with only 1,402 today. Among them, more than 5,000 have a median income below the national average.
- In total, 23 million additional residents in these municipalities could directly benefit from this multimodal offer — increasing coverage from 20 million inhabitants today to 43 million.
- As a result, the modal share of alternatives to solo car use could double in the areas served, rising from 10% today to 22%.

Contribution to CO_2 Reduction Targets

Within the modelled deployment scope[3], the 3.8 million tonnes of CO_2 avoided per year - due to the reduction in vehicle-kilometres travelled - would be sufficient to meet the French national 2030 objectives[4] for both modal shift and carpooling.

Socio-Economic Benefits

For households, by avoiding 26.5 billion car kilometres per year, this express system would lead to a direct reduction in expenditure estimated at €9.3 billion per year[5]. Including the allowances earned by drivers through cost-sharing[6], the annual household benefit would amount to €11.4 billion per year. These estimates do not take into account the cost of public transport fares (subscriptions or tickets) paid by households.

For the state and local authorities, the production cost of such a mobility system is estimated at €9 billion per year, including the compensation paid to carpooling drivers and excluding revenue from public transport fares[7]. These 9€ billion also take into account existing train expenditures, estimated at 3.2€ billion per year[8].

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[3]The analysis has been conducted at the scale of Metropolitan France, excluding the region “Ile de France” and travels within urban centers. The model focuses on long daily trips.
[4]Secrétariat Général à la Planification Écologique (SGPE), *La planification écologique dans les transports*, 2023.
[5]The number of veh.km has been multiplied by a cost of the individual car estimated at 35cts. Source : Ecov relying on Ademe, J.Coldefy, Adetec.
[6]The amount of carpooling allowances was obtained by multiplying the number of pass.km in carpooling by 10 cents euros.
[7]For regional train lines, the expenses are estimated at 3.3 billion euros per year (this amount was obtained by multiplying the number of veh.km ultimately by €25)) and for the Express Road Services, the expenses would be 5,6 billion euros per year (this amount was obtained by multiplying the number of veh.km of express bus lines by €3.5 and the number of pass.km of carpooling lines by €0.23).
[8]Here, the number of veh.km of existing train lines have been multiplied by 25€.

Thus, when comparing the benefits on one side with the production costs on the other, the net direct economic gain for society - from the perspective of households and public authorities - amounts to €2.4 billion per year, or €48 billion in current euros over 20 years.

In addition to this direct economic balance, socio-environmental benefits must also be considered. Based on the 2035 reference values, the main externalities avoided — including CO_2 emissions, air pollution, and road accidents — represent an additional €2.5 billion per year.

Turning roads into collective infrastructure

The transition towards mobility conceived as a network (MaaN) implies to shift from a road designed for individual usage, in an end-to-end logic, to a road designed as the backbone of a shared and multimodal network.

Introducing nodes

To shift from a door to door mobility to a point to point mobility, pick up and drop off points (PUDOS) have to be developed on road networks.

These PUDOS can take various forms : from a very large and equipped mobility hub in which there are services and infrastructures aiming at facilitating intermodal connections as well as daily services (bike reparation, post service, parcel pickup point...) to micro-hubs such as carpooling stops.

Similarly to transport capacities, the size of the PUDO matches territorial density.

These PUDOS have to be designed to facilitate intermodal trips which means that, depending on their size, they can integrate parking spaces for bikes and cars, secure transfer zones close to car traffic, accessible ticketing, clear information...

Some everyday services can also be integrated to increase density around these nodes. Transforming roads into collective infrastructure also means re-centralizing services and housing, which have become scattered as a result of widespread car use.

Investing in the development of multimodal hubs on the road also prepares for the future of the autonomous vehicle. To make possible massive AV sharability in the European Union, these vehicles have to be conceived as collective modes of transport and therefore operated as such, transporting people from point to point. Economically, it is also a necessity, as door to door transfers are extremely expensive, and we can expect a minority of passengers able to afford the cost.

Signaling collective usage : the political space of public transport

Beyond improving the quality of the offer, a system that is visible and supported by public authorities helps institutionalize, make visible, and legitimize alternatives to private car use.

Deploying high-quality infrastructure is essential for the widespread adoption of new practices. In her dissertation *"Seeing, Doing and Living the City by Bike: Cycling Practices and Mobility Policies in Two European Metropolises*[9]*"*, Manon Eskenazi analyzes how the *political space of cycling* - that is, the space shaped by political action in favor of cycling - helps expand the space of its actual practice.

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[9]Manon Eskenazi. Voir, faire et vivre la ville pour le vélo : pratiques du vélo et politiques de mobilité dans deux métropoles européennes. Géographie. Université Paris-Est, 2022. Français. (NNT : 2022PESC0008). (tel-03705702).

The visibility of infrastructure, facilities, and mobility services is one of the key factors in strengthening and improving the perception of these practices. The rollout of self-service bicycles, for instance, goes beyond its obvious function of providing easy access to bikes - whose economic efficiency or modal shift impact can be measured - and also plays a broader *latent role* in embedding cycling into the collective imagination of daily mobility. It contributes to a virtuous cycle that encourages wider cycling practices and legitimizes cycling policies and urban traffic calming strategies.

Like the cycling system, the public transport system relies on a triptych of infrastructure, services, and image. The visibility and quality of bus or carpool stops, in addition to the direct comfort they provide to users, are crucial for building awareness of these services and shaping the perception of these modes as legitimate and high-quality. These elements are essential to compete with the dominant imaginary of solo car use.

Restraining individual car usage and making space for sharability

Alongside the development of nodes and signage in public spaces, infrastructure can also be adapted to reduce the travel time of shared transport modes compared to solo car use - in other words, to increase the commercial speed of public transport.

This can be achieved, for instance, by introducing high-occupancy vehicle (HOV) lanes or by granting free access to parking facilities only to vehicles with more than one occupant.

While such measures are undoubtedly necessary, they must be preceded by the implementation of appropriate services and mobility hubs to provide credible alternatives to solo driving. The principle is simple: offer the alternative before imposing the constraint.

Governance and policy implications

The integration of the car into the multimodal system implies breaking the traditional boundaries between the geographical outreach of the car and the geographical administrative borders; the infrastructure, the services and the vehicle; and public and private actors.

Making this possible requires systemic governance schemes, able to draft and implement global policies.

Institutional recognition for a systemic approach to transportation

In December 2023, France passed a law[10] designed to accelerate the development of multimodal transport systems beyond city centers, across 26 major metropolitan areas. These systems bring together various land-based modes - including regional train lines, express bus lines, express carpooling lines, and express cycling lanes. By enabling the creation of such integrated networks, the law opens up space for local stakeholders to think how these modes can work together, leveraging their complementarities to enhance the passenger experience and strengthen both the economic and environmental performance of the transport system. Notably, by explicitly including carpooling lines, the law breaks a symbolic barrier: it formally recognizes the car as a component of the multimodal network.

In France, at the local level, regional spatial and mobility plans (SRADDET) and urban mobility plans (PDU) play a crucial role in approaching mobility solutions from a systemic perspective. They provide a strategic framework for planning how different transport

[10]Loi n° 2023-1269 du 27 décembre 2023 relative aux services express régionaux métropolitains.

modes will be deployed and integrated into a coherent network. At the national level, carbon reduction strategies set clear objectives that guide the development of public policies and steer decision-making towards carbon neutrality.

Shared governance models

Breaking historic mobility silos also implies setting up shared governance schemes between local authorities, transport operators and the civil society. Local authorities should be at the center of the governance, to ensure that mobility services respond to local needs and generate modal shifts from individual car usage. Operators are working for local authorities to provide qualitative alternatives to solo car usage for their users while guaranteeing the economic and ecological relevance of their services. The civil society can contribute to policy design, both post-ante and ex-ante, to guarantee that the service responds to their needs.

Providing financial support for local authorities to invest in mobility beyond city centers

As discussed further up in this position paper, dedicated funding has to be targeted in priority towards lower density areas, where solo car usage is still the main mode of transport. These funds have to be directed towards local authorities, who, then, organize mobility services according to the needs of their population.

Conclusion

Conceiving mobility as a network (MaaN) is a necessary condition for delivering scalable and equitable mobility solutions beyond urban areas.

In these lower-density territories, cars — with their smaller transport capacities — must be integrated into the multimodal system to ensure frequent service at a reasonable cost and with minimal CO_2 impact. The aim is to organise mobility flows as a network, enabling large-scale sharing and efficient use of resources.

Shifting from an individual, door-to-door model to a collective, point-to-point system outside city centres requires breaking down historical silos and focusing on what truly matters: moving people, not vehicles.

To achieve this, Express Road Services should be developed and managed under the leadership of local authorities, supported by dedicated funding. Road infrastructure must also be reimagined to serve mobility needs — transforming roads into collective infrastructures that form the backbone of a shared, multimodal network.

This network-based approach is particularly crucial as Europe approaches the era of autonomous vehicles. The services that enable large-scale car sharing today, together with infrastructure designed to support pick-up and drop-off (PUDO) points, lay the foundation for the operating system that will power tomorrow’s shared autonomous mobility

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Kinetic Elite and Hypermobility in Brazil

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This paper presents a critical analysis of urban mobility in Brazil through the twin concepts of hypermobility and the kinetic elite. It begins by examining their social representation in the media, where they challenge traditional paradigms of mobility, and by analyzing concrete examples of their manifestation in the country. Cultural productions such as Blade Runner (1982/2017), Succession (2018), the telenovela Vale Tudo (1988/2025) and the reality series Mulheres Ricas (2012) illustrate how certain individuals operate at the margins of the urban system through individualization, hyperspeed and exclusivity, embodying an anti-systemic stance. The study argues that urban mobility is fundamentally systemic (Bertalanffy, 2020), arising from the mutual interaction of transportation, traffic and land-use systems (Morin, 2003). Consequently, the transgression posed by this alternative form of mobility challenges established practices and norms, reshaping the urban mobility dynamic.

Through a qualitative methodology, the study investigates the territorial, political-administrative and economic relationships that influence mobility in Brazil. By integrating theoretical frameworks, case studies and empirical evidence, it deepens understanding of how the kinetic elite—defined as the mobility ideal that seeks to escape established systems—operates in direct opposition to principles of justice, equity and inclusion (Nyamai & Schramm, 2022), a phenomenon rendered more acute by Brazil's pronounced social inequality.

An analysis of cases such as Hotel Fasano Boavista (SP), Catarina Executive Airport (SP) and Transamérica Comandatuba (BA) reveals how this elite develops proprietary infrastructures—helipads, private airports and inaccessible luxury resorts—aligned with Santos's (2002) concept of "fast time." The findings indicate that hypermobility among Brazil's kinetic elites produces a doubly perverse effect: it intensifies social inequalities and distorts the foundational ideals of urban mobility.

INTRODUCTION

Hyper-mobility — mobility in its excess and fullest potency — has emerged as a relatively underused and under-investigated concept in Brazil. Although it is quite clear and operational in characterizing certain types of movement practices within the Brazilian context, there is very little explicit reference to hyper-mobility in academic articles and in mainstream press coverage. Socially, however, this idea is omnipresent when discussing the modes of locomotion adopted by Brazil's elite.

In this regard, 2025 is a special year both for Brazilian television drama and for cinematic expressions of urban mobility: a remake of what had been, until then, Brazil's most successful telenovela, "Vale Tudo," aired. The main character, Odete Roitman — a rich and powerful unscrupulous businesswoman — is introduced in the narrative by her arrival via helicopter at a modern high-rise in the city of Rio de Janeiro, Brazil's second-largest metropolis. The scene offers several interesting elements for analyzing the ideas that compose the character and the symbols of wealth and power she carries: her aerial arrival frames the exclusive helicopter against a splendid landscape, simultaneously freeing the character from the time loss associated with ground travel and allowing her to evade the urban realities experienced by most residents of that city.

This fictional scene parallels Brazilian reality: the country's largest city, São Paulo, hosts the largest fleet of helicopters in the world (Silva, 2025), where "the movement is so intense that the Air Force created an unprecedented system to ensure flight safety. São Paulo is the only city in the world that has exclusive air traffic control for helicopters." This technical endowment of the territory goes unnoticed by the vast majority of the population, who are also likely unaware that the country has the second-largest fleet of business jets in the world (Basseto, 2025), second only to the United States.

Moving around large Brazilian cities is neither pleasant nor equitable for the majority of the population. For the same route, enormous differences exist between using public transport and private transport. It is no coincidence that Brazil has a high rate of individual motorization[1], significant activity from app-based transport companies that often operate without regulation

[1] In 2024, Brazil's vehicle fleet totaled 123.97 million units, which is equivalent to about one vehicle for every 1.7 inhabitants. Data available at <https://www.poder360.com.br/poder-economia/frota-de-veiculos-no-brasil-cresce-4-em-2024-diz-levantamento/?utm_source=chatgpt.com>; accessed October 12, 2025.

(Tozi, 2023), and metropolitan areas that register some of the longest home-to-work travel times in Latin America[2].

In this context, it may seem justifiable that elites choose more efficient means of transport to save time. However, there are several aspects that condition these choices beyond travel efficiency. These aspects are not exclusive to Brazilian society, as the telenovela scene described above finds parallels in films and series around the world.

The film Blade Runner 2049[3], released in the United States in 2017, is a dystopia about the future of humanity in which the city is organized around flying vehicles that seem to follow few rigid traffic rules, while each vehicle is effectively autonomous in its path and speed, no longer constrained by the three-dimensionality of streets and roads. The following year, 2018, the series Succession premiered, telling the story of a fictional enormously wealthy and powerful American family that owns a global media company. Much of the series' dialog takes place inside private planes and helicopters, framed by Manhattan in the background, reinforcing the idea of a power that transcends ordinary reality and for which there are no physical or temporal restrictions on mobility. These characteristics enable the characters to be in many places worldwide within short time frames, reinforcing the idea of ubiquity that the elite exhibits.

In the same spectrum, but as a real case, in 2023[4] a viral YouTube video showed singer Taylor Swift's aerial movements: she flew a total of over 175,000 miles (281,635 kilometers) that year. The video generated public indignation, both because of the singer's extremely high mobility — which she justified as necessary to fulfill her performance schedule and manage her daily life — and because of the large amount of harmful gases emitted by a single individual.

In Brazil, in 2012 a reality show entitled "Mulheres Ricas" (Rich Women) aired, documenting the everyday lives of a group of wealthy women in the two largest Brazilian cities — São Paulo and Rio de Janeiro — and produced a scene that remains in the public memory. Two socialites, Narcisa Tamborindeguy and Val Marchiori, met in Rio de Janeiro for a helicopter ride. During the flight Narcisa was excited to see the city small beneath them, and as they overflew a favela — a territorial expression of poverty and precarity common to much of Brazil — Val asked whether the helicopter was armored. Subsequently, Val stated that she feared the

[2] World Bank data on public transport improvements in São Paulo (Line 5) are available at the World Bank results page: <https://www.worldbank.org/en/results/2021/11/10/oving-toward-better-public-transport-in-brazil-improved-mobility-for-s-o-paulo-commuters-using-metro-line-5?utm_source=chatgpt.com>; accessed October 14, 2025.

[3] The film *Blade Runner 2049* is a remake/sequel of the 1982 film *Blade Runner*, which is set in a hypothetical 2019.

[4] Newsweek published an item about Taylor Swift's private-jet travel and the debate it sparked: <https://www.newsweek.com/taylor-swift-private-jet-eras-tour-video-1893150>; accessed October 2, 2025.

city of Rio de Janeiro and only traveled in armored vehicles, demonstrating a total detachment from urban realities in Brazil. At the end of the flight, Narcisa asks the pilot to perform a “buzz” maneuver — a sudden climb and descent to feel more excitement and “butterflies” — which gives the helicopter an additional function: an instrument of entertainment for that elite.

These real and fictional examples encompass a wide array of signs and symbols related to mobility, which allow us to better understand hyper-mobility as an attribute of the elite, characterizing it as a kinetic elite (Costas, 2013; Cresswell, 2006). This elite is composed of highly mobile, high-income individuals — such as bankers, diplomats, and artists (Elliott & Urry, 2010) — who move with great effectiveness, performing a fuller mobility or hyper-mobility. Hyper-mobility thus becomes desirable because it is glamorous, prestigious, and advertised as a status symbol (Presskorn-Thygesen, 2015).

This article proposes to analyze the concepts of hyper-mobility and kinetic elite to examine the movements of Brazil’s elite and the infrastructures that enable this form of mobility. The examples listed here, national and international, represent how certain subjects travel more quickly and comfortably, interact peculiarly with urban space, and require adaptations in it through specific infrastructures to accommodate elite mobility.

To deepen understanding of these processes, this study addresses the concepts of system, network, ubiquity, flows, symbolic capital, and mobility justice, aiming to situate hyper-mobility within a more precise and articulated conceptual framework. Finally, this article seeks to analyze the expression of this phenomenon in the Brazilian context through some notable examples of hyper-mobility infrastructures used by the country’s kinetic elite.

RESEARCH QUESTIONS AND METHODOLOGICAL APPROACH

This article addresses two central questions for understanding the hyper-mobility of the kinetic elite. The first is whether the concepts addressed here — hyper-mobility, kinetic elite, system, network, ubiquity, flows, symbolic capital, and mobility justice — are appropriate as a theoretical framework and conceptual structure for this research. Second, given that hyper-mobility is used as a mechanism of social stratification and distinction in Brazil, what are the implications that the infrastructure supporting this hyper-mobility has on the landscape of Brazilian cities?

These questions aim to capture the hyper-mobility phenomenon and its territorial expression in Brazil, based on real and fictional examples that represent this type of mobility among the Brazilian elite. For this purpose, the article was based on analysis of films, television

series, and journalistic reports, so as to raise the questions to be discussed. From this basis, examples of hyper-mobility are analyzed through concepts drawn from the specific literature, to create a theoretical-conceptual framework for understanding the topic. Finally, an analysis is made of some territorial expressions of hyper-mobility in Brazil, read through the created conceptual framework, which enable the conclusions presented at the end of the article.

HYPERMOBILITY OF THE KINETIC ELITE

Elites move in differentiated ways. For them, minimizing the time spent and maximizing comfort are non-negotiable assets. Traveling long distances in a short time is commonplace in contemporary society, since air travel and high-speed trains make up part of social mobility patterns.

However, what differentiates the kinetic elite is the frequency of such trips, the shorter times spent, and maximum comfort obtained. High-income people face few obstacles to being in many places in a short period. They visit exhibitions, attend events, participate in meetings, go on vacation, often on different continents within the span of a week. The ways that allow them to achieve this apparent ubiquity are broad access to advanced means of transport, notably airplanes and helicopters. Thus, elites increasingly value a lifestyle where movement is the rule of everyday life (Alcoforado, 2025). This is evident both in the number of times a subject travels and in the manner in which they travel.

On social media, elites' airplane trips frequently gain prominence through posts that showcase the luxurious manner in which they are made — in business or first-class cabins, where a single seat may occupy the space of up to four economy seats and cost ten times more[5], mediated by privileged access to lounges and concierges provided by premium credit cards. There is even shower service available on some planes, demonstrating that there are no infrastructural or environmental limits to pleasing travelers willing to pay a high price for these trips. The system of distinction and exclusivity extends across all transport types, from ships and trains to everyday rides in higher-tier categories, such as Uber Black — executed in larger and more comfortable cars and, therefore, more expensive trips.

Yet often, true luxury is achieved through exclusivity — traveling alone, on one's own schedule, and in one's own means of transport. This can be accomplished with private planes

[5] See CNN Brasil's coverage of premium first-class airline products (showing showers, caviar, onboard suites, etc.) at <https://www.cnnbrasil.com.br/economia/macroeconomia/aereas-com-as-melhores-primeira-classe-tem-chuveiro-caviar-e-ate-suite-a-bordo-v/>; accessed 8 october, 2025.

and helicopters, for example. It is in this way that the kinetic elite distinguishes itself and achieves mobility goals with distinction. Within symbolic systems, distinction is the sign most desired by the elite (Alcoforado, 2025). Notably, travel acquires these contours the more comfortable and expensive it becomes.

Considering that the sign is established by convention and exemplification (Goodman, 1968), the examples cited here demonstrate a convention that elite mobility differs from others', that is, it is distinct. Therefore, by convention, it bears the epithet of distinction. The exemplification of this mobility is given by its specific characteristics, which characterize it as hyper-mobility — mobility carried out with great efficiency. Thus, from sign systems it can be inferred that elite mobility, distinct from other forms, is hyper-mobility.

The acceleration of time-space and the landscapes of flows produce sensations of ubiquity and immediacy, elements central to hyper-mobility (Harvey, 2012). Thus, among the symbols that qualify hyper-mobility, certainly the most valuable is ubiquity. The word ubiquitous derives from Latin ubique, meaning "everywhere," and can be translated as the capacity of an individual to be present in many places at once (Santaella, 2013).

Although mobility and ubiquity are distinct concepts, they are strongly associated, since the possibilities of one enable the other — that is, the greater the mobility, the more effective the movement, and consequently the more ubiquitous the individual.

Thus, ubiquity in urban mobility can be erroneously interpreted as omnipresence, meaning simultaneous presence in two or more places at the same time — an impossible fact under the laws of physics, but highly desired in symbolic representation. It can instead be understood as the capacity to move or displace with such connectivity and functionality that spatial and temporal barriers are minimized, so that users and their transport modes are "available everywhere" or "present in multiple places," both in a physical sense (transport, infrastructures) and an informational sense (technology, data, communication), making truly efficient movements possible.

Hyper-mobility should be understood as an open system, in the sense proposed by Ludwig von Bertalanffy (2020), in which elements — transport, traffic, and land use — interact continuously and produce mutual effects. Thus, urban dynamics cannot be reduced to the sum of their parts, because behavior emerges from the interrelations between material components (infrastructures, roads, vehicles) and symbolic components (policies, values, social representations). Since hyper-mobility is a specific cut of mobility, the whole system becomes

highly mediated by consistent symbolic components that rely on specific and often inaccessible material components.

Following Edgar Morin's (2003) perspective on complexity, urban mobility reveals itself as a network of interdependencies where order and disorder coexist and where the effects of local actions propagate globally. Traffic, transport, and land use form a systemic fabric crossed by material and informational flows, in which decisions by the kinetic elite produce broad externalities — reconfiguring travel times, land values, and forms of segregation.

Understanding a complex system requires integrating contradictions and circularities among its parts; likewise, thinking about mobility requires recognizing that the privilege of a few to move with speed and comfort depends on the relative immobility of many. Considering Goodman's theory of representation (Goodman, 2006), where signs participate in the symbolic system to naturalize meanings and create myths, for the kinetic elite hyper-mobility naturalizes itself as a form of movement and use of material components, creating the myth that being elite is being hyper-mobile.

For Castells (1996), the "ubiquity" enabled by hyper-mobility appears in the interweaving of networks that make places interdependent and grant remote and simultaneous presence; the flow infrastructure enables the existence of hyper-mobility by binding times and spaces into what he calls "network nodes", conferring strategic functions on infrastructures and equipment. Thus, networks are the basis for hyper-mobility.

> As a historical tendency, the dominant functions and processes in the information age are increasingly organized around networks. Networks constitute the new social morphology of our societies and the diffusion of network logic substantially modifies the operation and results of productive processes, experience, power, and culture (p. 497).

Thus, for the author, the material base of contemporary societies is constituted by the technical and infrastructural systems that allow the continuous and simultaneous circulation of flows — economic, communicational and human — that structure social and spatial life in the information age. Thus, condensed infrastructure at certain points, or "network nodes", create the conditions for the kinetic elite to operate almost simultaneously in multiple localities and at different temporal scales, sustaining the mythology of unlimited speed and symbolic ubiquity.

We can add to this reading the sociotechnical problem of current infrastructures through the concept of "splintering urbanism" (Graham & Marvin, 2001), in the sense that infrastructures driven by excessive social, communicational and technological entanglement are difficult to read and understand. Thus, in the kinetic elite's perception, hyper-mobility escapes

the traditional mobility system, so that its displacements operate at the margins of networks, with greater efficiency and exclusivity. For Castells (1996), Bertalanffy (2020) and Morin (2003), hyper-mobility is part of the system, and is instituted by physical and symbolic means to operate through interdependence and the expression of systemic imbalance.

HYPERMOBILITY THROUGH SYMBOLIC CAPITAL AND MOBILITY JUSTICE

Although capitalism has found ways to provide mobility with efficiency and freedom of movement (Kotter, 2008), hyper-mobility can be seen as a social practice in which it is incorporated, represented and structured in society through bespoke infrastructures related to the intensification and speed of movement in late modernity, where it includes not only physical movement but also representations, institutions and the infrastructures that make it possible (Urry, 2007). In addition, it presupposes a political dimension, mobility justice, where inequalities in access, citizenship regimes linked to mobility and everyday practices normalize who can move easily and who remains precariously mobile (Sheller, 2018). Thus, mobility becomes a central theme for understanding contemporary inequalities, where hyper-mobility operates in ways that deepen them.

When we introduce the concept of mobility justice into this analysis (Cresswell, 2006; Sheller & Urry, 2006), we see that systemic imbalance in urban mobility translates into asymmetry of access to flows — a central aspect of contemporary hyper-mobility. While kinetic elites accumulate temporal and symbolic capital through rapid, protected and personalized mobility, middle and lower classes face long commutes, precarious public transport and waiting times that reduce their social and productive insertion. The city thus becomes a system that reproduces inequalities through its very circulation structure: the power to move becomes at the same time the power to choose and the power to exclude. In this way, thinking of mobility as a system is also an ethical and political exercise — understanding that efficiency and fluidity cannot be dissociated from distributive justice of movement, and that democratizing the right to circulate constitutes the true challenge of contemporary urbanity.

In this sense, kinetic elites operate without their antithesis, so that distributive mobility justice is not realized. Hyper-mobility then entails uncertainties associated with its access, massively permeated by symbolic forms — consumption, identity, belonging — that alter the availability and flexibility of infrastructural systems. For Milton Santos (2002), the distinction between "fast time", associated with elites and dominant institutions, and the so-called "slow time", experienced by marginalized populations, helps exemplify how urban mobility can reinforce urban inequalities and limit the right to the city (Harvey, 1973).

Thus, exclusivity as a symbol of hyper-mobility in Bauman's (2001) perspective of "liquid modernity" is based on the uncertainties and fragilities of access and availability, which sometimes occur within existing infrastructures (road systems, airports) and sometimes in proprietary infrastructures (private airports, heliports), conditioned by the decision-making and consumption power of agents who dominate these displacements. In this way, these agents begin to organize and legitimize new mobility regimes (Cresswell, 2006).

Several studies highlight a tension between systemic, collective mobility and elite-oriented individualized mobility. Systemic mobility refers to public transport, shared infrastructures, and policies aimed at inclusivity. In contrast, individualized mobility—often associated with the kinetic elite—relies on proprietary infrastructures that bypass or undermine collective systems. Accessibility and modal diversity in Brazil are stratified by class and race, with upper classes enjoying greater selectivity and exclusivity in their mobility patterns (Bittencourt et al., 2021; Barbosa et al., 2020).

Hyper-mobility thus becomes symbolic capital (Bourdieu, 2007), insofar as it is exclusive and transforms social value into capital reproduction in urban contexts. The conditions under which movement occurs become both a marker of class and an instrument of distinction in cities, converting into a "mobility habitus" (Bourdieu, 2013), which are internalized schemes of perception and action that guide travel choices and spatial practices. Just as urban locations and mobility patterns function as expressions of social position and power, travel practices, frequency, and access to privileged transport infrastructures serve as symbolic markers that consolidate status and often enable capital conversion.

In this sense, travel practices operate as structures of power where economic resources are transformed into prestige by the kinetic elite, which, due to its hyper-mobility, accesses global opportunities (ibid., 2007). Thus, this symbolic capital becomes a relational measure of the elite, where the construct of social positions, relational networks and symbolic valuation of agents also operate in the production and reproduction of territory and infrastructure.

The concept of “habitus” (ibid., 2007) proves particularly valuable for understanding how mobility practices become naturalized and embodied among different social groups. Elite mobility patterns reflect and reproduce class-based dispositions, creating what scholars term — internalized schemes of perception and action that guide choices of movement and spatial practices.

THE BRAZILIAN CONTEXT

The Brazilian context of elite hyper-mobility is highly expressive, both in its quantity and in its prominence. This subsection discusses four examples of elite residence, leisure, and consumption spaces that illustrate how infrastructures are produced and oriented to enable the realization of hyper-mobility. For Alcoforado (2025):

> In Brazil, luxury goods are not only status symbols, but they play a fundamental role in the operation of difference, since they compose the standard of living. This classificatory category is the result of the union of two systems essential to distinction: things and money. Having a good standard of living is having the chance to inhabit, transit and coexist with other individuals in the world of the rich. A moral zone in which social actors access and share exclusive benefits and privileges, distant from the majority of the population. (p. 147)

Located approximately 70 kilometers from the center of São Paulo, the privately managed executive airport Catarina[6], located in the municipality of São Roque, can be considered the major symbol of hyper-mobility in Brazil. It was conceived for executive aviation and offers exclusive concierge and luxury services. The existence of this infrastructure reconfigures travel time for residents on the Castello Branco highway axis — which hosts the main high-end gated communities of Greater São Paulo. Thus, it produces a new pattern of ubiquity for high-income users while functioning as a physical and institutional filter of circulation.

Therefore, this airport acts as a direct mechanism for reproducing the kinetic elite's symbolic capital: access to private/charter flights is a status marker that translates into time saved and exclusivity — central elements of this elite's capital. Entry restrictions (credentialing, flight cost) and premium services (VIP lounges, aircraft parking) reinforce barriers. In doing so, they optimize flows for a few hyper-mobile subjects while remaining disconnected from everyday and collective mobility demands, both functionally and territorially.

On the same urban axis where Catarina is located lies the Fasano Boa Vista and Fazenda Boa Vista residential and hotel complex [7], which is 42 kilometers from the airport and 103 kilometers from central São Paulo. Detached from the metropolis, this enclave articulates exclusivity through a combination of peri-urban location and very high-standard infrastructure. Its physical envelope reduces the number of human flows entering the site and transforms travel

[6] São Paulo Catarina Executive Airport in <https://spcatarinaaeroporto.com.br/o-aeroporto>; accessed 13 october, 2025.

[7] Hotel Fasano Boa Vista in <https://fasano.com.br/hotel/fasano-boa-vista/>; accessed 13 october, 2025.

into an intimate prerequisite of the experience — a private vehicle, time, or reserved transfer is necessary to reach the enclave.

The relative distance from the urban network, dependence on automobiles, proximity to the exclusive airport, and presence of helipads formalize a logistical barrier: selective accessibility functioning as a social filtering mechanism, both materially and symbolically. Thus, both Hotel Fasano Boa Vista and Fazenda Boa Vista operate as nodes of high symbolic density composed of exclusivity, ubiquity, and prestige, concentrating leisure experiences and high-quality infrastructure in closed territories oriented toward private mobility.

In downtown São Paulo, another commercial enterprise materializes for the kinetic elite — the Cidade Jardim shopping mall [8]. This commercial space organizes the experience as an environment that filters flows and is known as the shopping center you enter by car. Although pedestrian entry exists, access is relatively facilitated by private car and enhanced by parking and valet services — modes that privilege motorists — and at the same time it is uncomfortable for public transport users, consolidating a consumption pattern dependent on private mobility.

The "difficulty" here is not an absolute physical barrier but a pragmatic one: traveling to the mall comfortably presupposes resources (time, vehicle, security conditions), which synthesizes a quotidian form of restriction. More than controlling access, Cidade Jardim transforms consumption into a prestige performance: flagship luxury stores and exclusive events act as generators of symbolic capital. The ubiquity of the brand (its clients circulate across other nodes of prestige) makes presence at the mall function as a seal of belonging to cosmopolitan circuits. From the perspective of mobility justice, the mall exemplifies the creation of infrastructures that normalize motorization as a condition of participation in a certain kind of urban life — reproducing inequalities of access to leisure and prestige networks while failing to offer integrated public transport alternatives of quality.

Another exponent of the kinetic elite is the Transamérica all-inclusive resort[9], located on Comandatuba Island in Bahia, which has a private aerodrome prioritized for guests and resort operations. Thus, the island and the resort create an archipelago of exclusivity: access often involves direct flights or connections to regional airports followed by boat or launch transfers, which adds cost and logistical complexity — elements that, by themselves, bar mass access. The

[8] Cidade Jardim Shopping Mall at <https://cidadejardimshopping.com.br/>; accessed 13 october, 2025.

[9] Transamérica Resort at <https://www.transamericacomandatuba.com.br/>; accessed 13 october, 2025.

private aerodrome linked to the Transamérica group reduces the time barrier for guests traveling by private air, converting travel into an integrated part of the destination experience.

The result is an insular enclave whose isolation is actively produced (designed) rather than merely geographic. This configures Transamérica Comandatuba as a classic form of elitist mobility: optimized travel time (via its private aerodrome or charter flights), on-island services, and an all-inclusive offer that substitutes urban circulation for controlled immersion. The symbolic capital here arises from the idea of a "private island," reinforced by arrival protocols and limited public visibility — a powerful socio-temporal mark of distinction. In terms of mobility justice, the operation illustrates how private tourism infrastructure captures mobility flows within a closed circuit, reallocating economic and environmental benefits to a select public while large segments of the local population remain with precarious access and limited economic opportunities.

All these examples are some among many that mark the activity of Brazil's kinetic elite. Here, given the large social contrasts, these cases become even more acute in the sense of the differentiation they present in relation to the mobility forms of the general population.

CONCLUSIONS

Hyper-mobility presents itself as a distinctive attribute of the kinetic elite, characterized by maximum efficiency, comfort, and speed in movement. For its realization, hyper-mobility presupposes dedicated infrastructure that has concrete impacts on the Brazilian urban landscape, creating exclusive "network nodes" (Castells, 1996) disconnected from the collective urban fabric, such as executive airports, heliports in residential enclaves, and commercial equipment with selective access.

One of its pillars is the feeling of ubiquity (omnipresence), which minimizes spatial and temporal barriers for elites, while most of the population lives a "slow time" (Santos, 2002) of precarious mobility. If urban mobility is a system (Bertalanffy, 2020), hyper-mobility can be considered a subsystem or an anti-system. A subsystem in the sense that it feeds back into the system: demands for fluidity and exclusivity induce spatial and technological transformations (executive airports, gated communities, expressways), which in turn reinforce unequal circulation patterns in the urban fabric. An anti-system because it operates outside the system and often interferes with it.

This characteristic causes profound systemic imbalance, since it depends on the relative immobility of many, deepening inequalities and violating principles of mobility justice (Sheller,

2018). Moreover, the interaction between material elements (infrastructure) and symbolic elements (status, distinction) complicates the system (Morin, 2003), naturalizing its existence and exclusion.

The mobility expression of the elite acts as a potent mechanism of social stratification and symbolic distinction, converting into symbolic capital (Bourdieu, 2007) that marks class, status, and power, going beyond mere logistical efficiency in a society marked by large social inequalities. In the Brazilian context, the territorial expression of hyper-mobility is particularly acute, creating physical and symbolic filters (e.g., Catarina Airport, Cidade Jardim Shopping) that segregate and fragment the territory, consolidating a "splintered urbanism" (Graham & Marvin, 2001).

Thus, all four cases presented are variations on the same pattern: the production of high-symbolic-density "place-nodes" that filter flows and reproduce mobility privileges for a small elite. While Fasano and Cidade Jardim use architecture and consumption to construct urban-territorial prestige, Catarina and Comandatuba act on travel-time dimensions to transform distance into competitive advantage. From the standpoint of mobility justice, these facilities show how private infrastructure and services create asymmetries — not only of physical access but of time, security, and social recognition — that sustain the logic of kinetic elites.

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Mobilizing communities: Advancing just mobility transitions through commoning

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Abstract

Present day mobility systems are unjust and unsustainable. They are dominated by a regime that sees commodification and market forces are the primary creation of societal welfare, with underlying culture founded on individualist values. Sustainable mobility innovations have all too often optimized this regime rather than challenge its structures and values. However, from a transitions research perspective, regimes are always contested. In the civil domain a variety of challenges and alternatives are being developed. Drawing on 3 empirical cases from 4 years of PhD research, this paper argues that community initiatives are shaping a movement of commoning mobility that can govern just mobility transitions. First, we discuss Dutch shared mobility cooperatives and their transformative potential for steering the mobility transition towards mobility commons. These initiatives highlight community-built autonomous spaces and the complexity of public-civic cooperation. A second illustration of this entrenched regime and the ways communities have attempted to transform it comes from an analysis of the Amelisweerd social movement. As a fifty-year mobilization to protect a forest estate from highway construction, this movement demonstrates how communities can not only resist policy but also develop their own knowledge & alternatives and establish coalitions of activists and policymakers. Finally, stepping out of the Dutch context, we describe how transition management approaches have attempted to support the development of urban mobility & housing commons in Oslo, Norway. By drawing on a broad set of empirical work we thoroughly analyze the underdiscussed topic of community organizing for just mobility transitions. We highlight especially the strategies of commoning mobility for transition governance, the nuanced connection between commoning and mobility justice, and the challenges faced by commoning if it is to achieve its transformative potential.

1. Introduction

As mobility transitions appear to be moving beyond their initial stages of experimenting with technology and slightly altering policy, we can more fundamentally question the direction in which these transitions are progressing. Are we truly transforming our systems for organizing mobility so that everyone will be able to get their fair share of movement and to have their voice heard on these matters? It is well-established that current systems do not meet these criteria and critical perspectives from e.g. mobility justice argue that current transition pathways will not change this (Boehm et al., 2022; Gössling & Cohen, 2014; Sheller, 2018). We attribute this at least in part to the curious lack of involvement of community actors in mobility transitions. Other advancing sustainability transitions in energy or food systems have prominent presences of e.g. energy cooperatives and community-supported agriculture (Bauwens et al., 2024; Feola et al., 2021). These community networks are not just transforming the ways in which they meet their own needs but are also destabilizing

incumbent approaches to transition. Our search in the lead author's PhD research has been for similar movements in mobility systems, specifically in the Dutch context.

This paper seeks to summarize the theoretical perspective, empirical work, and overall discussion of the PhD. It draws on sustainability transitions research and commons research as its foundations for our conceptual framework of commoning mobility as just transition governance. We then discuss the methods used in our three cases, whose results we cover in the form of 'case study vignettes' that distill the core lessons of each case in shorter form. Finally, we reflect critically on the current state of commoning mobility as a form of transition governance. To what extent have commoning mobility initiatives managed to establish a niche for themselves, and how are they interacting with incumbent actors? How do they contribute to mobility justice both in their visions and methods? And what impacts can such small-scale initiatives truly have on societal mobility transitions? By addressing these questions, we seek to advance the debate on mobility transition governance and the role of communities therein.

2. Theoretical background

Our research is grounded in the paradigm of sustainability transitions research, particularly the body of work around transition governance. We extend this perspective by bringing in the theory of commoning mobility, a concept that has recently emerged at the intersection of mobilities and mobility justice research. In this section we explore these theoretical foundations, elaborating on the development of transitions research and the state of the art, and discussing how commoning mobility fits into the dynamics of transition governance.

2.1 Sustainability transitions & transition governance

Sustainability transitions research has emerged over the past two decades as a method for studying and advancing processes of societal change (Grin et al., 2010; Markard et al., 2012) Transitions are understood as fundamental shifts in societal systems of e.g. energy, mobility, healthcare, or housing, in non-linear processes of change that can take many years to unfold (Loorbach et al., 2017). While a great deal of work has been done on historical transitions from e.g. horse-and-cart to automobility, many in the field are primarily concerned with accelerating changes towards a sustainable and just society. The key concepts here are the *regime* and the *niche*, the former being the relatively stable set of structures, cultures, and practices that dominate a particular system (Geels, 2005). The latter is the origin for radical alternative practices that seek to challenge, alter, and replace the regime through social or technical innovation (Pel et al., 2020; Smith & Fressoli, 2024). Niches initially form protective spaces for such innovations to develop, but must inevitably cooperate or collide with existing actors (Smith & Raven, 2012). The body of work on transition governance is especially relevant here as it is focused on structuring these interactions in such a manner that they advance transitions (Hebinck & Loorbach, 2024). The field of transitions at large, emerging from evolutionary economics and innovation sciences, initially had a focus on technical and socio-technical systems. In recent years many more pluriform approaches have been introduced with the application of socio-ecological and socio-institutional perspectives (Loorbach et al., 2017). Simultaneously, more questions were raised on the vision of the future transitions researchers were working on, as issues of (in)justice had often gone unnoticed (Avelino et al., 2024). Below we discuss first the body of work around (action-oriented) transition governance and then cover the case for a just sustainability transitions lens.

Transition governance is a key theme within sustainability transitions research, as the field's normative ambitions naturally raise many questions on how to 'steer' such transitions (Köhler et al., 2019). Transition governance here is understood as "a multi-actor process in which systemic solutions, disruptive innovations, and (reflexive) institutions are formed by experimenting and learning" (Loorbach et al., 2017, p. 612). Transitions research has developed a range of approaches both to analyze and advance this process (Hebinck & Loorbach, 2024). Our paper joins the body of work investigating how community actors can foster such disruptive innovations in collaboration with and opposition to established market/state actors (e.g. Adey et al., 2021; Avelino et al., 2020; Bauwens et al., 2022; Pel et al., 2020; Seyfang & Haxeltine, 2012). Transition governance from a community perspective, to us, therefore implies a mix of strategies aimed at institutionalizing community power, phasing out undesirable market-state regimes, and adapting desired elements of market-states to the future system.

The recently emerged 'just sustainability transitions' concept is particularly relevant for our connection of transition governance to commoning mobility (Avelino et al., 2024). As commoning mobility stems from political understandings of mobility systems, it needs a similarly critical perspective on systemic change. It is insufficient to assume that the noble intentions and rhetoric behind sustainability transitions (and commoning) will automatically result in more just systems. Researchers of justice in transitions therefore advocate for a multi-dimensional understanding of justice, that analyzes the present situation, desired future state, and the process by which that state is reached (Jenkins et al., 2016; Mullen & Marsden, 2016). In each of these phases, dimensions of distributive, procedural, and recognition justice are often used to highlight inequalities in who bears costs and benefits, who gets a say in decision-making, and whose voice is considered relevant (Williams & Doyon, 2019). From this tripartite foundation, researchers have extended the justice framework with additional dimensions of e.g. epistemic, spatial, or planetary justice, as well as applying it across multiple scales (Avelino et al., 2024). One useful and prominent example for us is the work of Mimi Sheller (2018), whose theory of mobility justice takes this multi-dimensional and multi-scalar perspective to deliver a deep critique of not only the unsustainability, but injustice and coloniality of present-day mobility. She further advocates for commoning mobility as a key direction towards mobility justice.

2.2 Commons & commoning mobility

Commons exist in the popular (academic) imagination mostly in the context of the 'tragedy of the commons' based on Garrett Hardin's infamous 1968 eponymous article. Yet his notion that community management of shared resources was doomed to failure was thoroughly disproven by Elinor Ostrom, whose work led to a surge in commons research (Ostrom, 1990). Since the 1990s, this discipline has produced various strands of work. The 'Ostromian' tradition has carried on with an economic view of commons, investigating their nature as common pool resources and the particulars of their type of resource management (Volont, 2021). Yet as the understanding of what can be a commons has broadened, so more sociological and political perspectives have emerged (Borch & Kornberger, 2015; Caffentzis & Federici, 2014; Volont, 2021). Marxist theorist David Harvey defined commons not as resources, but rather as *"an unstable and malleable social relation between a particular self-defined social group and those aspects of its actually existing or yet-to-be-created social and/or physical environment deemed crucial to its life and livelihood. There is, in effect, a social practice of commoning.* (Harvey, 2012, p. 73). It is this outlook of 'commoning', that is less concerned with strictly bounded commons and more with an overall logic of groups of people seeking egalitarian and non-commodified means of meeting their needs, that we subscribe to in our research.

The notion of commoning also forms the backbone for research into mobility commons, or rather commoning mobility. Nikolaeva et al. (2019) depicted commoning mobility as an institutional logic that seeks to counter incumbent logics of scarcity and austerity in mobility governance. Where the predominant approach to mobility governance takes on a technocratic and apolitical guise, commoning mobility seeks to highlight the imbalances of power and distribution resulting from this system. Its overall agenda is one of democratization. Following Cresswell's (2010) definition of the politics of mobility being found in movement, meaning, and practice, commoning mobility aims to transform the distribution of movement and modalities, the cultural values attached to those movements, and the daily practices that shape movement. Aligned with the broader understanding of commoning as opposed to commons, the concrete practices trying to bring this logic to life can come in a variety of forms. Nikolaeva et al. (2019) themselves highlight a Dutch app that allows users to convert kilometers travelled by bicycle into a community currency used by local stores in a particular neighborhood, as well as a social movement in Chile that won important concessions to protect communities from displacement due to highway construction.

In the cases that follow, we combine transition governance with commoning mobility to better understand how the latter's normative ambitions are mixed with everyday practices that are meant to accelerate systemic change. We discuss three varying initiatives that align with the logic of commoning mobility despite their different focuses. For each case, we are particularly concerned with how 1) their practices connect to the values of commoning mobility and 2) their practices succeed in influencing ongoing mobility transitions.

3. Methods

The case studies in this paper draw on a variety of methods. This section will discuss each of them in turn, covering the objectives of each study and the methods used to achieve them.

3.1 Mobility cooperatives

The first case in this paper is the movement of Dutch mobility cooperatives. These are self-organized initiatives in which citizens share (electric) cars in their area. Through the cooperative, members decide for themselves what type of cars to co-own as well as the rules and regulations around usage. Cooperatives exist not simply to provide mobility services for their members, but rather to advance a social and environmental agenda – emphasizing shared ownership, community spirit, and self-governance. In our previous paper investigating this movement, we carried out an embedded case study of this movement with individual cooperatives as instances of the broader case (Beemer et al., 2025). While not a fully comparative design, this nonetheless allowed us to both understand individual cooperatives and draw conclusions about the transformative potential of the movement as a whole. We conducted thirteen semi-structured interviews with members of six cooperatives and two informal community carsharing initiatives. These were analyzed deductively based on a theoretical framework contrasting the incumbent mobility regime with the alternative logic of commoning mobility.

3.2 Amelisweerd social movement

Our analysis of the Amelisweerd social movement is based on primary and secondary sources. Primary sources included online timelines and articles of activist groups, describing their history, actions, and objectives – from e.g. Vrienden van Amelisweerd (https://www.vriendenvanamelisweerd.nl/) and Kerngroep Ring Utrecht (KRU)

(https://www.stopverbredingringutrecht.nl/). The former is the longest running group in the defence of Amelisweerd, dating back to the 1970s. The KRU is a fusion of several groups focused on legal challenges to the government's expansion plans and the development of local alternative plans. A number of government sources on their mobility plans, referenced by the groups, were included as validation (Nota Mobiliteit 2005, Tracébesluiten). Secondary sources included the detailed journalistic description of the initial mobilization by Grimbergen et al. (1983) and several academic publications (Buiter, 2006; Geels, 2007; Jansma, 2025; Toussaint, 2019; Van De Riet & Toussaint, 2014). There is a notable dearth of academic work on the second Amelisweerd mobilization since 2005, which we hope to begin addressing. We used these texts for a historical narrative that analyzes the Amelisweerd social movement from a transition governance perspective. A longer analysis forms a separate chapter in the PhD, which will be made available as a preprint in December 2025.

3.3 ReShare urban commoning initiatives

Our final case study departs from the Dutch context, analyzing instead initiatives working towards urban mobility commons in Oslo. This occurred within the broader ReShare research project that seeks to identify means to integrate and institutionalize shared spaces and mobility (Di Marino et al., 2024; Uteng et al., 2025). We also take a broader perspective on commoning mobility – looking not just at community-based initiatives, but also interrogating how actors from the public and market spheres might contribute to the democratization of mobility. We use a multi-methods approach based on interviews with stakeholders and a workshop applying an adapted version of the transition arena method. The three sub-cases of OBOS Living Lab, Ellingsrud Transformation Area, and Parqio were each analyzed initially using qualitative interviews and surveys. This will be followed by an overall analysis from a stakeholder workshop hosted on 16 October 2025. In particular, we sought to identify the alignment of the Oslo sharing experiments with urban commoning and understand the tensions of hybrid approaches to commoning that more heavily involve market actors.

4. Results

This section describes the three major case studies that form the backbone of the empirical PhD research. We typify them as 'vignettes' because the versions of our analyses presented here are significantly shortened, aiming to convey the essentials of each case for our overall discussion of commoning mobility as just transition governance.

4.1 Mobility cooperatives

The first example of commoning mobility we highlight is that of Dutch mobility cooperatives. As discussed above, these are member-owned and self-governing initiatives offering shared mobility – typically in the form of electric cars. Mobility cooperatives thus far tend to operate on the neighborhood scale, offering 5-10 cars to around 50 households. The vignette below highlighting the transformative potential of these cooperatives is an adaptation of our published work on this movement (Beemer et al., 2025).

Cooperatives challenge the incumbent automobility regime on three overarching aspects. The first of these is by developing mobility as a common good instead of a commodified service. In mobility cooperatives, rather than simply purchasing a product or service, members share the responsibility to determine a sufficient amount of mobility for the collective. Members were motivated to join for the larger vision of cooperatives to restore local communities and challenge car-dominated public space, but also for the practical

benefits of dedicated parking spaces and reduced mobility costs. This presented a limitation of cooperatives' transformative potential, as the risk was always present to focus too much on short-term needs and forget the larger mission. Furthermore, cooperatives struggled to define themselves as a different kind of shared mobility in a paradigm dominated by commercial providers – who use the language of sharing, but do not reject commodification.

The second major challenge comes from the aspect of community. Where the mobility regime is built on individualist values of e.g. freedom, safety, and cocooning, cooperatives instead emphasize community spirit and the social nature of mobility. Dutch mobility cooperatives succeeded in establishing new communities and social relations among previously unconnected neighbors. However, they struggled to extend this community beyond a group of first adopters who were often white, highly educated, and progressive. Some members also remained stuck in a "citizen-as-consumer" worldview, rejecting the collaborative and community-focused aspects of cooperatives and emphasizing only the balance between costs and services they benefited from.

Finally, cooperatives challenge the market-state governance aspect of the mobility regime by strengthening commoning and community power. Cooperatives established sustainable self-organizing practices to maintain their initiatives. While these were often initially very labor-intensive and often remain precarious, translocal networks of cooperatives have emerged that share blueprints for organizing, broader insights, and collaborate in lobbying local and national authorities. Cooperatives also sought to establish partnerships with government actors and some market actors. While these secured necessary conditions such as subsidies and parking spaces, they also posed a risk of co-optation or marginalization. Cooperatives were appreciated as 'cute' neighborhood initiatives, but their larger visions for systemic changes were much more threatening for policymakers.

4.2 Amelisweerd social movement

The Amelisweerd social movement is a 50-year mobilization of activism against highway construction and expansion defending the Amelisweerd forest estate next to the Dutch city of Utrecht. It is notable both for its persistence and achievements in defending the forest, as well as its ambition to contribute to a broader mobility transition. In this vignette we do not seek to cover the full history of the movement, but rather highlight examples of how the activists have practiced transition governance throughout their mobilization.

When the Amelisweerd movement first objected to the construction of Highway 27 through Amelisweerd forest in 1971, they were widely lauded for their 'constructive' approach. From the start, the activists made significant efforts to write critical reports and engage with the proposed design on a substantive level. While internally the activists rejected the idea of the road wholesale, to the outside world they initially suggested alterations of the trajectory and won these and other concessions. After this initial victory, however, the movement subsided again and was somewhat blindsided in 1975 when the government resumed construction. From then onwards, the movement would not be limited to a single leverage point for change, but rather develop a critical **systemic awareness**. Understanding both the physical operation of the automobility system and the system of governance developed around it became critical for activist resistance across multiple leverage points. Through policy critiques, lobbying, court cases, mass actions, newspapers and petitions, and blockades & occupations, the Amelisweerd movement effectively pressured different aspects of the mobility system.

Operating from a systemic perspective further allowed the activists to **destabilize the incumbent regime** more powerfully. In the 1970s, this occurred when the activists began

publicly questioning the need for Highway 27 – refusing the logic of the rapidly expanding automobility system of the time. With support from the student and green movements, the Amelisweerd movement blocked the construction until 1982, when armed police bulldozed their encampment and destroyed the trees despite an ongoing court case. In the present day, destabilization has proven more difficult due to the entrenchment of automobility. Activists have had to seize external shocks, such as the Covid-19 pandemic or the nitrogen emissions crisis, to strengthen their case.

The present mobilization, however, benefits from increased momentum in support of a sustainability transition away from automobility. The movement has been able to **articulate desired futures** with greater legitimacy due to the emergence of a sustainable mobility paradigm. Since obtaining the support of the Utrecht municipal and provincial governments, these actors have further taken up the visions developed by the activists and formed the Alternatief Ring Utrecht (ARU) plan. This plan, which rejects the expansion and instead maximises throughput in the existing construction while investing heavily in different mobility behaviour and public/active transport, forms the most elaborate alternative solution for Amelisweerd thus far. However, it also illustrates the limits to the activists' agency for proposing different futures. The ARU does not reject the logic of dedicating further resources to growing automobility, nor the idea of incremental change through optimal usage of infrastructure. Additionally, the idea of fully rejecting the highway as in the 1970s has now become a political impossibility.

Finally, none of the impacts made by the activists would have been possible without **creating protective spaces**. The movement managed to support a broad array of actions first from 1971 to 1982, then again from around 2005 to the present day. A key strategy here appears to be allowing multiple groups to form with their own specialties for actions: for instance one focusing on direct action where another takes on legal challenges and lobbying. While the groups are part of the same movement and coordinate on a strategic level, much of the day-to-day organizing is given greater flexibility through this network structure. The Amelisweerd groups have also frequently established coalitions with other groups, for instance learning from international forest defense groups and collaborating with Extinction Rebellion. One limitation is that these spaces have often been temporary, as the movement does not have a permanent place in the forest or cultivate alternative practices among its members – as some more prefigurative social movements would emphasize.

4.3 Urban commoning in Oslo

Our final case study vignette comes from the variety of initiatives towards urban (mobility and housing) commoning in Oslo, Norway. These illustrate the trajectory of commoning through different phases, moving from a loose variety of communities to coalition-building and public-civic partnerships, towards a prospective urban commons. These cases take a broader, more place-based perspective on commoning that – in terms of the common good being shared – sometimes aligns more with urban commons than mobility. Yet they have important insights for our work, especially regarding the development of commoning mobility as a niche and the involvement of 'commons-friendly' market actors.

Phase 1: OBOS Living Lab

The OBOS Living Lab in Oslo is an experimental space, where major housing cooperative OBOS can trial different sustainable technologies and residents share spaces, goods, and mobility. The Lab balances between social and technical innovation and between initiatives stemming from its project team or from the community. The vision is aligned with urban mobility commons, as it seeks to institutionalize sharing and strong communities throughout

OBOS's projects. However, as all three Oslo projects demonstrate, this vision can easily be constrained by both the context of the case as a Living Lab and the nuances between neighbors sharing spaces and autonomous communities.

Living Labs are a well-established type of protective niche space where transition practices can be trialed (Mukhtar-Landgren et al., 2025; Von Wirth et al., 2019). They have been criticized especially due to the risk of 'projectification', where major institutional actors such as OBOS create a separate space for sustainability practices that do not filter back to the main organization (Torrens & Von Wirth, 2021). While OBOS is technically a cooperative, its sheer scale of housing ownership means it is far removed from commoning. Their perspective as a dominant market actor in an overcrowded housing market filters through into the types of sharing being developed in the Lab. The inhabitants have significant influence on the sharing practices they wish to try, but this is then facilitated by OBOS and offered as a commodified service. Shared ownership and self-governance may be involved in the long-term perspective, and the project is certainly acting from a position of goodwill towards a commoning agenda. Yet due to the institutional framework it originates from, there are significant risks that the Living Lab instead represents a kind of 'crowding out' of commons by market actors moving into practices of community-building and sharing.

Phase 2: Ellingsrud

The Ellingsrud Transformation Area is another OBOS project that offers a different and more justice-oriented approach towards sharing. Ellingsrud is in a more low-income neighborhood, where the need for sharing and reuse is more urgent than simply coming from a personal conviction. OBOS here has given a space for free to the local community, who run a store for second-hand goods where everything costs 5 kroner (0,50 euros). The space is also used for repair and maintenance workshops in the vein of Repair Cafés. Compared to the Living Lab, this demonstrates a more advanced form of the hybrid partnership for urban commoning. The community is relatively autonomous within the supportive space created by OBOS. The short-term nature of experiments and trials in the Living Lab is replaced with a long-term structure for the community to work. Finally, the services provided do not rely on commodified intermediaries, but are run by volunteers and offered at very low costs.

Phase 3: Parqio

Finally, the third example of hybrid projects for urban commoning comes in the form of Parqio. This is a company aimed at transforming Norway's many parking garages into community-managed spaces for shared mobility and goods. As with cases #1 and #2, the vision behind Parqio certainly aligns with commoning mobility. Parking garages in Norway are closed-off spaces that serve little purpose beyond storing cars that are not used for significant swathes of time. They represent a significant waste of space and resources stemming from the current automobility paradigm. Parqio provides an app that gives secure digital access to individual garages for users, including e.g. for deliveries and maintenance services. This acts as a 'Trojan Horse' intervention, that is appealing to a broad audience otherwise uninterested in transforming their garages. The vision, however, is that the app and service provided over time do make resident communities realize they have a valuable asset on their hands which they can use to better meet their mobility needs. This makes Parqio an intriguing proposition for a next step in commoning mobility, addressing a persistent problem of waste on a larger scale where commoning emerges across contexts from daily practices. Yet the extent of its success remains to be demonstrated by how effective its Trojan Horse strategy is at converting both garages and their owners.

5. Discussion

This research has highlighted the persistent problems of injustice and unsustainability in the present (auto)mobility system, and the means by which the dominance of automobility shapes the directionality of mobility transitions. Against a backdrop of market-state actors pursuing incremental change and optimalisation, we have sought to identify community actors that are instead pursuing more fundamental change in ownership structures, societal values, and governance practices. The case studies in this research highlight the diversity of ways in which communities can affect transitions, and in particular, how they support a transition pathway of commoning mobility. This final section extends our analysis to this pathway as a whole, reflecting on its current tenuous position and its potential to further institutionalize and foster a just mobility transition.

5.1 On niche formation and regime interaction

In recent years, transitions research – especially work focused on transition governance – has sought to understand transition dynamics beyond the well-established picture of a dominant regime and small-scale protective niche spaces (Hebinck et al., 2022). As prominent transitions in e.g. energy or food systems have advanced, attention has shifted to the 'transition space' that emerges when a dominant regime can no longer be easily identified, or the formation of more advanced 'niche-regimes' as alternatives mature (Bosman, 2022; De Haan & Rotmans, 2011). In some ways, our research must take a step back to conclude that commoning mobility still exists largely in the earlier stages of niche formation. The work of Dutch mobility cooperatives and experimental spaces in Oslo aligns well with conventional understandings of niches. The Amelisweerd social movement represents a somewhat different type of space, as it is less oriented towards autonomous practices and more towards creating political pressure on the automobility regime. While valuable lessons can be learnt from each of these cases, the logic of commoning mobility remains diffusely spread across context without strategic coordination.

Approaching the subject from a commons perspective instead of a transitions perspective allows for similar conclusions. While commoning mobility practices may have existed informally across communities for a long time, explicit discussions of commoning mobility as a concept and an ideal have only emerged in practice and academia in recent years (see Glover, 2016; Nikolaeva et al., 2019). Conversely, Ostromian commons research has investigated forests and fisheries as common pool resources for decades – and closer to the field of transitions, energy and urban commons researchers have established strong analyses of their respective niches (Bauwens et al., 2024; Borch & Kornberger, 2015; Hess, 2008). While mobility commons need not explicitly define themselves as such, as many mobility cooperatives for instance do not, it acts as a limitation on their transformative potential (Beemer et al., 2025).

The early stages of nice formation that commoning mobility finds itself in further influences how commoning initiatives relate to more established government and market actors. Commons often find themselves in tense and contradictory positions regarding regime actors. On the one hand, as exemplified by the radical strand of commons research, the values of commoning exist in opposition to capitalist and statist forms of organizing (Caffentzis & Federici, 2014). Commons build autonomous spaces of shared ownership, non-commodified provisioning and egalitarian community. Yet, more recent advances in commons theory have demonstrated that commons are never fully autonomous and always entangled with the systems they seek to transform (Brandtner et al., 2023). In a negative sense, this can for instance mean that mobility cooperatives find themselves competing with

established market providers of shared mobility. In a positive sense, it can allow governments to provide subsidies, set legal frameworks, or found public-common partnerships. From a transitions perspective, these kinds of engagements are critical to strengthen the transformative impact of commoning mobility as they allow incumbent actors to adapt or phase out their practices. Below, we reflect on the different forms of commoning mobility in this study and their implications for changing multi-actor governance relations.

The case of Dutch mobility cooperatives depicts mobility commons as **autonomous alternatives**. The explicit intention of these initiatives is to develop self-sufficient and self-organizing communities that meet their own mobility needs. In their relations with other governance actors, they seek to establish partnerships in which they do not have to sacrifice this autonomy to fit into established policy or business logics. Rather, the type of support they require is institutional frameworks and boundaries that allow them to better overcome bureaucratic and financial hurdles. In Amelisweerd, commoning acts instead as a **democratizing counterweight**. A more confrontational approach, the social movement demonstrates the potential for communities to govern transitions by developing their own versions and organizing a broad spectrum of resistance. It challenges both the popular NIMBY image of community advocacy and implies that governments should alter their technocratic and distant approach to mobility policy – which the Utrecht city government also showed is possible. Finally, the Oslo cases describe commons as **interstitial spaces**. Here the politics of mobility commoning become muddled as communities explicitly engage with and rely on actors from the paradigms they mean to transform. Yet if commoning mobility is to reach further stages of niche development and institutionalization, spaces such as these will only become more common. Further work is necessary to understand the conditions under which such partnerships can succeed, but we can conclude initially that letting communities set their own agenda and identifying a shared vision are critical lessons.

5.2 Relationship between commoning mobility and mobility justice

Mobility justice is a multi-scalar and multi-dimensional framework for evaluating the politics of mobility (Sheller, 2018). It overlaps with commoning mobility in its critiques of incumbent mobility systems: not only in the unsustainability of various emissions, but especially in the inequalities in the causes and burdens of pollution, and the exclusionary forms of governance that typify mobility (Adey et al., 2021). Commoning mobility is often seen as a ‘solution’ or at least a pathway leading towards greater mobility justice. The case studies in our research support this connection while also highlighting the complexity and compromise of bringing the theory of mobility justice into practice.

Some critiques of commoning mobility initiatives from a mobility justice perspective are readily apparent. The issues raised and addressed by commoning groups in this study are less concerned with sustenance or costs of living, and more about overarching problems that take a certain degree of privilege to be able to spend time addressing. While groups certainly had mobility justice values of affordability, community-building, and egalitarianism at heart, it was often not at the core of their strategy and aims. Rather, it was environmental and climate concerns that (initially) drove them, with social aspects emerging over time. This restricts the transformative potential of commoning mobility, as its agenda can seem disconnected from everyday concerns of ‘ordinary’ people. It is a relatively limited group of well-educated, progressive, white, and middle-class people who choose to spend their time contributing to a commoning mobility initiative. Rather than dismissing them out of hand, this implies instead the need for an agenda that connects sustainability-based commoning

initiatives to broader networks of care-based groups or partnerships with public actors that have a responsibility towards society as a whole.

More important issues emerge not so much from those making change, but rather the visions for change themselves. How fundamental are the challenges posed to incumbent cultures, structures, and practices by commoning mobility groups? They certainly seek to alter conventional notions of private ownership and an identity where needs are met through market-based consumption. Yet as discussed previously, commons are always partial and overlap with those conventional systems. While mobility cooperatives succeed in establishing new communities based on self-governing shared mobility, they often target in particular the ownership of second cars – as it is easier to persuade people to let go of a secondary car rather than their only private car. In Oslo, the OBOS Living Lab offers spaces and goods for sharing among neighbors. It too succeeds in changing members' daily practices, but it often relies on short-lived experiments of new technologies and is primarily dependent on the initiatives of its OBOS project team. The self-governing community envisioned by commoning mobility is less visible here. Often, these limitations appear from pragmatic compromises made by commoning initiatives to gain a foothold. These again are not to be dismissed per se but rather should be reflexively understood so commoning initiatives do not lose their radical core in attempting to develop the niche.

Mobility justice heavily criticizes the present approach to mobility transitions. The current course retains the dominance of automobility, relying on (visions of) technological innovation to achieve sustainability objectives – or reducing those objectives when they become inconvenient. Commoning mobility would therefore have to achieve significant victories to alter the direction of change towards a just mobility transition. In its current stage of niche development, it does not appear capable of rapidly manifesting these victories. While initiatives demonstrate transformative potential, they remain marginal. Our research suggests shifts in perspective are required from different actors to overcome this. Among commoning groups themselves, it is the implicit nature of their commoning philosophy, along with being in early niche development, which appears to hold them back from forming broader coalitions. When for instance mobility cooperatives do form networks they are quickly validated as important tools to encourage translocal diffusion and improve cooperative practices. As highlighted above, we suggest that more explicit connections to commoning and justice could strengthen initiatives to go beyond experiments and replacing second cars. Outside the initiatives, however, government and market actors often remain unprepared for assertive community governance. Several strands of commons research have proposed institutional frameworks for public-common or place-based multi-actor partnerships that engage with the complex politics of attempting to connect commons with the regimes they intend to transform. Our research has revealed promising examples of hybrid coalitions around for instance Amelisweerd activism and Oslo sharing experiments. A great deal of work remains to be done to strengthen their lessons and institutionalize a commons-friendly perspective in the market-state.

5.3 Conclusion

Commoning mobility holds valuable transformative potential for a mobility transition that seems to be on a road to nowhere. Both in principle and in practice, commoning initiatives such as cooperatives, activists, and urban experiments demonstrate that incumbent practices of private ownership, individualism, and consumption can be challenged and overcome. Simultaneously, commoning mobility remains in a niche formation stage and there are many open questions still open as to its possible forms, the radicality of its vision, and its impact on the mobility transition at large. This paper has sought to provide an

overview of a perspective that combines sustainability transitions literature with commons and mobility justice research. Our three empirical case vignettes highlight contrasting practices of commoning mobility – where commons can be autonomous alternatives, democratizing counterweights, or interstitial spaces. We advance the discussion on commoning mobility by applying a transition governance perspective that critically examines the transformative potential of various forms of the philosophy. Future work can take up especially our recommendations around connecting these forms into broader coalitions and challenging the restrictive approaches from public actors to commoning.

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