

The transformation of urban mobility practices in Maastricht (1950-1980)

Citation for published version (APA):

Dijk, M., Hommels, A., & Stoffers, M. (2021). The transformation of urban mobility practices in Maastricht (1950-1980): Coevolution of cycling and car mobility. *Transfers. Interdisciplinary Journal of Mobility Studies*, 11(3), 22-61. <https://doi.org/10.3167/trans.2021.110303>

Document status and date:

Published: 01/12/2021

DOI:

[10.3167/trans.2021.110303](https://doi.org/10.3167/trans.2021.110303)

Document Version:

Publisher's PDF, also known as Version of record

Document license:

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The Transformation of Urban Mobility Practices in Maastricht (1950–1980)

Coevolution of Cycling and Car Mobility

Marc Dijk, Anique Hommels, and Manuel Stoffers

Abstract

This article reconstructs the historical transformation of mobility in the city of Maastricht in the period 1950–1980, from cycling as the most popular mode of traveling in the 1950s to car driving by the end of the 1970s. Based on an analysis of written sources and oral history interviews with Maastricht travelers and other practitioners who experienced this shift themselves, this article sheds light on this historical transformation, its key actors, and its main drivers. Combining insights from studies of social practice-based perspectives on mobility, historical sociotechnical transitions, and the model of urban obduracy, this study seeks to contribute to understanding why and how cities may transform toward being unsustainable places. Furthermore, it aims to show how social practice approaches can give more context-sensitive insights into processes of transformation and transition compared to established MLP-based transition approaches, by giving more attention to local meanings.

Keywords

automobility, cycling and social change, history, practices, sustainable transitions, the Netherlands, urban mobility

Section 1:

Introduction: Histories of Cycling and Car Mobility in Cities

Between World War I and the late 1950s, the bicycle was omnipresent on public roads in many parts of the Western world outside the US.¹ Thereafter, cycling diminished and was superseded by car mobility. This shift in mobility practices entailed significant changes in urban spaces. Transport-historical studies on the decline of cycling have mostly focused on the lost battles for bicycle infrastructures and the decreasing social status of cycling. However, scholarship has underexposed the ways in which urban cycling and car mobility coevolved through partly common infrastructures and partly interrelated meanings and competencies. This article addresses this issue by raising



the following question, focusing on the city of Maastricht in the period 1950–1980 (see Figure 1): How was the diminishing use of bicycles related to the surging use of the car?

Transport studies have observed a general (urban policy) trend of “accommodating car use,” at least until the 1980s, which seems broadly accurate but has received limited empirical elaboration.³ In 2000, Kees Schuyt and Ed Taverner noted that, given the seemingly significant role of car mobility in the societal transformations after World War II, it was surprising that a history of automobility in the Netherlands had not been written.⁴ Since then, however, Dutch mobility history studies have addressed and explained the various aspects of the car mobility “explosion,” such as surging adoption levels of vehicles. Peter-Eloy Staal shows how the growth of real incomes after the 1950s was a key driver, because it not only enabled the purchase of a car but also went hand in hand with the opportunity to buy a better house at some distance from the city (i.e., suburbanization).⁵ Others have analyzed discourses in the main national automobile club,⁶ the building of highways,⁷ and the evolution of national transport policy.⁸ Thomas Vaessens has addressed the societal embedding of the only domestically manufactured car, DAF. His study has shown how this affordable though technically innovative car was a symbol of national economic and engineering achievements in the postwar period, of growing incomes and self-confidence.⁹ This, and all of the previous work, does not, however, specifically address how (growing) car mobility coevolved with (declining) cycling in cities, which were transforming to accommodate

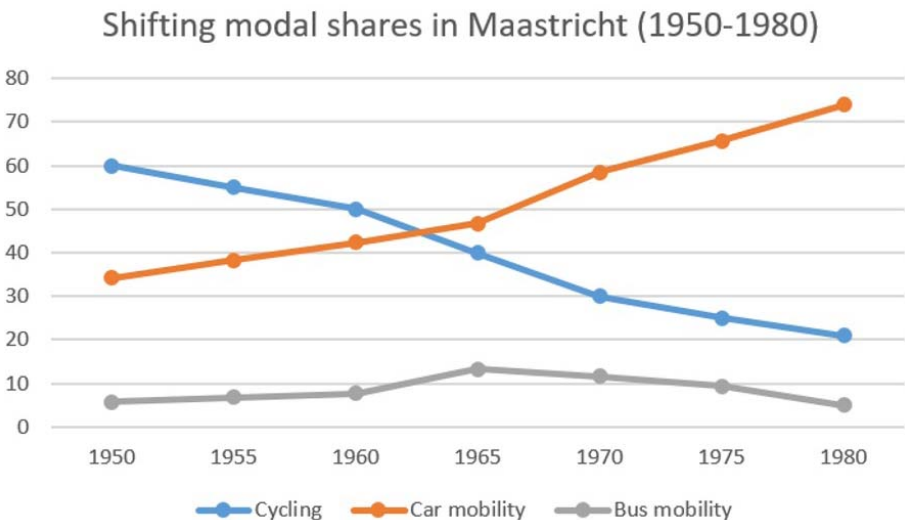


Figure 1. Modal share estimations in Maastricht (1950–1980)², only considering car mobility, bus mobility, and cycling (so excluding walking and mopeds).

the explosion of cars.¹⁰ Even Ruud Filarski and Gijs Mom's wide-ranging and detailed 2008 analysis of changing Dutch mobility patterns in the nineteenth and twentieth centuries hardly talks about the coevolution of cycling and car use in the Netherlands.¹¹ Many relevant questions remain unanswered or are not even raised. What were the specific challenges of growing car mobility in the city—for instance, the spatial interference with cycling, limited opportunities to extend roads or parking space, congestion, tensions with cultural heritage, and air quality and noise issues—and how were these addressed by various actors (e.g., through parking policies, such as parking disks, meters, or garages)?

Transport studies have examined the question of how people choose between car, bicycle, or public transport for their daily transportation needs in cities.¹² However, as Harry Oosterhuis has shown, this research has not been able to provide a convincing, simple, universal, and clear-cut answer to this question.¹³ *Many* factors and forces play a role in modal choices, and these vary according to local circumstances. Moreover, the way that these factors interact also depends on the local circumstances. In his extensive review of existing research on this matter, Oosterhuis distinguishes the following six factors as determinants of cycling levels: (1) natural conditions (hilliness, climate), (2) land use patterns and built environment (e.g., density, urban space), (3) demographic characteristics of the population (e.g., professions, age, income, education), (4) traffic infrastructure (e.g., bicycle facilities), (5) individual motivation, and (6) collective habits. As Oosterhuis notes, of these factors 1, 2, 3, and 6 cannot be directly influenced by human interventions, while 2, 3, 4, and 6 are the product of long-term historical developments. Except perhaps for factor 1, none of these factors, not even the individual motivations, can be said to exist outside and independent of the social contexts.

Oosterhuis's analysis fits in with and is partly based on an increasing number of studies that emphasize "the socially variable character of cycling."¹⁴ These studies argue that the present hegemony of automobility is in fact not the result of cumulative individual modal choices, but the product of a "system of automobility"¹⁵ that is socially and historically produced and institutionally embedded. To these analyses belong a slowly increasing number of studies on the historical modal shift from cycling to car driving in the twentieth century. An important and groundbreaking study in this respect was published twenty years ago by the Dutch scholars Adri Albert de la Bruhèze and Frank Veraart,¹⁶ whose Dutch report was recently translated, updated, and expanded under the direction of Ruth Oldenziel.¹⁷ In their work, based on a comparison of sixteen European cities in the expanded version, these researchers highlight the relevance of local variations in urban morphology and transport alternatives (e.g., available public transport) to explain the differences in bicycle use. But more important in their analysis are three other factors that help us to understand the importance of cycling: (1) the extent

to which the bicycle was acknowledged, protected, or ignored and hindered in traffic policies; (2) the cultural status of the bicycle as expressed in public images of cycling among elites and the general public; and (3) the strength of social movements in favor of cycling.

While the research by Oldenziel and Bruhèze's group is focused on local differences (especially in these last three aspects), other research has demonstrated that local variations are themselves often embedded in distinctive national and even international contexts.¹⁸ Policies and public images related to cycling have an obvious national component, as Anne-Katrin Ebert's comparison of Dutch and German bicycle history has demonstrated.¹⁹ At the same time, images of cycling and social movements related to cycling in particular are also partly an international phenomenon, as both the spread of car-city planning since the 1930s and the international rise of pro-cycling movements since the 1970s demonstrates.²⁰

Urban historians have highlighted how, after World War II, European planners, road engineers, politicians, and policymakers started thinking about the best ways to plan cities in a context of expected increases in the number of cars. While massive highway construction was well underway in the US at the time, traffic congestion was not yet a serious problem in European countries. Moreover, in the years after the war, funding went to projects that had more priority than infrastructural innovation. In the Netherlands, as in most Western European cities, it was very clear that automobile traffic would significantly increase, and that it was necessary to start thinking about the implications of this growth for the city and about whether the American example had to be followed.²¹ These studies have focused more on urban infrastructures and less on automobility histories.

Growing car mobility in cities coinciding with diminishing cycling formed a major transformation of urban mobility between the early 1950s and the 1980s,²² but how did they coevolve and how did this transformation unfold? These questions have not been specifically addressed in previous studies, which have mostly focused on either cycling or car mobility, not their interrelation or coevolution. The two are clearly related, although not in a simple or straightforward way: cycling was not simply fully replaced by car trips.²³ We will apply a novel theoretical perspective (i.e., a social practices-based approach) to the analysis of this transformation (see Section 2). Although this perspective has been applied to various social practices (such as showering, using air-conditioning, and walking), a detailed study of changing mobility practices in cities is lacking.²⁴ In this article, we focus on mobility in the Dutch city of Maastricht, a case not included in earlier publications,²⁵ to understand the local specificities of this period of transformation (1950–1980, see Figure 1), as well as the merits of our coevolutionary and social practices-based approach. We report on a study based on interviews with travelers in Maastricht about this transition period, asking about the ways in which they traveled

before getting access to a car and after. As Section 3 (on methods) describes in more detail, these interviews were combined with an analysis of written sources. Section 4 is the core of the article and reports on the findings of these traveler interviews, combined with the findings of the analysis of written sources. Section 5 concludes by answering our research questions on coevolution and transformation.

Section 2: Conceptual Approach

How did the shift from cycling as the main way of urban traveling to car mobility unfold in the city of Maastricht, in the period 1950–1980? In order to answer this question, this section develops a theoretical perspective on the transformation of urban practices.

Transition studies have referred to widespread, established practices as “the regime”: practices with a high degree of alignment and self-reinforcing stability.²⁶ By contrast, a niche is defined as a space of innovation that differs fundamentally from the prevailing regime and has as yet a low degree of alignment. For a range of historic transportation cases, a multilevel perspective (MLP) has been applied to explain how (micro-level) niche innovations and (macro-level) landscape changes can put the (meso-level) regime “under pressure.”²⁷ The “destabilized” regime offers windows of opportunity for niche innovations to be “scaled up,” which can overthrow regimes through various forms of niche–regime interactions.²⁸ This approach is seen as attractive for its comprehensive nature and its ability to explain long-term and far-reaching shifts in sociotechnical systems.²⁹ However, critics have argued that the broad scope of the framework (and the key role of “pressure” between the levels as *explanans*) limits the insight into the more subtle politics of innovation and transition,³⁰ as well as the attention on local, spatial specificities of transition.³¹ More concretely, MLP-based studies have tended to assume rather than explain the presence of “an established regime” and have mostly analyzed shifts from one regime to another, whereas in practice, fragmentation and plural regimes seem more likely,³² or there may be no regime in the first place.

To understand the alignment or stability of a potential regime more explicitly and in a more locally specific way, the concept of “obduracy”³³ may be instrumental. This concept was introduced in the context of the SCOT-model³⁴ and helped to explain how certain actors are restricted in their problem-solving capacities due to certain levels of inclusion in a technological frame. In the urban context, the concept of obduracy helps us to understand the difficulty of changing urban structures once they are in place.³⁵ Over time, urban structures tend to become more and more integrated with one another, and disentangling such sociotechnical ensembles can be hard to achieve. The increasing obduracy of urban artefacts can, for example, be explained by the

growing interconnection and interdependence of physical infrastructures with legal and policy arrangements, with mobility practices, and with key actors that try to protect or promote a specific sociotechnical status quo.

In order to avoid the assumption of “an established regime” in the first place, social practices-based perspectives take social practices as their focus of analysis: a type of behavior that is routinized. Unlike MLP, social practice theories (SPTs) decenter technology and explicitly recognize it as deeply integrated with social processes and, very often, mundane everyday shared conventions of living and doing.³⁶ Although a unified social practices theory is lacking, the range of studies using the concept interrelate, and some commonly shared understandings can be distilled. The eponymous notion of practice is generally held to comprise a nexus of “doings and sayings,” that is, the ways that people travel, eat, shower, heat their homes, and so on. Some definitions of practices explicitly include objects and the material world as part of that nexus.³⁷

Social practices are not only “sites of interaction” but have a powerful shaping and ordering role themselves.³⁸ A social practice approach is specifically geared toward studying how practices “interlock” and are “bundled” in local settings that may lead to different outcomes in superficially similar circumstances.³⁹ Initially, SPTs were criticized for being more suited to accounting for stability than understanding change and for being limited to local doings. Matt Watson, however, has explored how 1) SPTs can account for change and transformations of practices over longer periods of time, and how 2) SPTs are not only about doings of local users and consumers, but show how practices connect to practices in other places and governance levels.⁴⁰ The approach we take in this article fits into this line of thinking.

Our SPT perspective centers on practices that actors engage in, in which they use resources more or less efficiently and equally through activities, such as (in this article) traveling. Earlier applications of SPTs to cycling, by Elizabeth Shove and others,⁴¹ already give an idea of the usefulness of this perspective in understanding the coevolution of cycling and driving and rightly emphasize the complexity of the changes in collective travel choices that SPTs both highlight and analyze. The analytical focus on practices is important because more than by technology alone, resource use and equity are driven by people’s behavior, their ways of doing. Their activities unfold within social structures and technical infrastructures, which are to a significant extent shaped by regulatory structures (i.e., policies). Our perspective builds on an existing sociological model of social practices⁴² consisting of three types of elements: *materials* (i.e., infrastructures and artefacts), *meanings* (i.e., the way that the practice is framed), and *competencies* (i.e., knowledge and skills, but also financial capabilities).

Practices are not purely social phenomena but are shaped by materiality. This has been convincingly demonstrated by Latour and others who have

pointed out that infrastructures and materiality shape and co-constitute what we do to an important degree.⁴³ Humans are part of socio-material configurations, and in the case of urban mobility this includes, for instance, roads, bridges, pavements, parking facilities, vehicle technology, and similar phenomena. It is important to consider these materials as linked to a diversity of practices: “distinguishing between material arrangements and practices allows us to acknowledge that past and present infrastructures are frequently implicated in the enactment of several practices at once: for example, roads feature as material arrangements amidst which the diverse practices of walking, cycling, driving and horse riding all go on.”⁴⁴ Similarly, it is hard to imagine a practice like showering without the supplies of water, electricity or gas for heating the water, and innovations in plumbing or showering technology.⁴⁵

Practices are also closely linked to cultural meanings attributed by various stakeholders. Cox and Bunte emphasize that “meanings are not only formal understandings but also include symbolic meanings, ideas and aspirations.”⁴⁶ The way that a practice is framed can have important implications for its societal acceptance. The public image of a certain practice is also part of the system of meanings.⁴⁷ For example, meanings of showering as a practice are closely intertwined with values such as freshness and relaxation.⁴⁸ In the case of urban mobility, it is important to analyze which meanings users attribute to cycling or car use. In our research, it became clear, for instance, that both cycling and car use were associated with freedom and leisure.

Competencies refer not only to “the individual skills and performances of practitioners but also [to] the collective performances and actions, embodied in social structures.”⁴⁹ Competencies include practical know-how as well as bodily activities.⁵⁰ Which skills are needed to drive a car or to ride a bicycle? How did cycling competencies change as a result of the growing number of cars and buses in the city streets? How did cyclists cope with the diverse types of street pavements in their cycling practices? Financial capabilities, such as having the financial means to afford a car or a bicycle, are also included in the category of competencies.

In stable practices the three elements of materials, meanings, and competencies are successfully linked. Practices may change as new elements are introduced, for instance, new artefacts are developed or new meanings gain traction (possibly imported from elsewhere or shaped by changes in “neighbouring practices”), “with implications for the [existing elements] that circulate within the practice.”⁵¹ Some elements persist; other elements disappear, while successful linkages between elements may be broken, adapted, or new linkages established. Such changes may trigger the introduction of yet other new elements. While new elements as such may be imported from elsewhere and thus can “travel,” the practices they form are “necessarily localized, necessarily situated,” embedded and integrated in a local context that does not “travel.”⁵² In linking the different elements of practices, issues of timing are

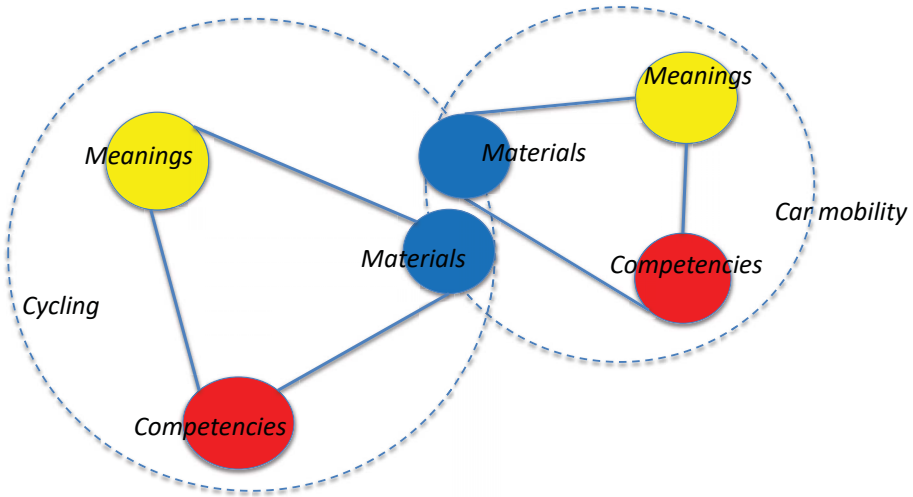


Figure 2. Cycling and car mobility in Maastricht as entangled practices.

crucial. Shove argues that “‘elements’ of practice are not static: they are defined and constituted in relation to each other and . . . they are constantly on the move.”⁵³ However, it is argued that SPTs also allow for analyzing patterns of path dependence, by emphasizing that the constituent elements of social practices in themselves can become resistant to change.⁵⁴ Lastly, the SPT approach also acknowledges that the emergence, persistence, and disappearance of social practices are connected to uneven distribution of power.⁵⁵

In this article, we take the described sociological model of social practices⁵⁶ as our starting point, while applying SPT in a broader perspective to inform societal transformation.⁵⁷ Instead of employing the notion of “systems” in relation to practices, we develop the concept of “entangled practices” to explain how practices transform in relation to each other. Although our perspective on urban mobility puts the traveler center stage (i.e., in cycling and car mobility routines), entangled through partially shared infrastructure (see Figure 2), we also found them to be entangled with urban planning practices and with public transport and parking operations. In Section 5, we reflect on the merits of our coevolutionary and social practices-based approach.

Section 3: Method

To understand the practices of cycling and car driving in Maastricht in the period 1950–1980 from an SPT perspective, we consulted two types of sources: written sources and oral accounts of travelers and other practitioners from this period.

Fourteen interviews with stakeholders (twelve travelers, two urban planners, one parking operator; see Appendix 1) were conducted. The selection of relevant stakeholders was based on a combination of snowballing and the analysis of written sources (positional approach). We sought a diversity of respondents across socioeconomic backgrounds, occupations, and genders, and a representation of the various urban neighborhoods of Maastricht. As noted, the time span of the cases is broadly 1950–1980. We interviewed travelers who were at least eighteen years old in this period, which roughly means that they are above seventy years old today.

Our group of interviewed travelers consists of twelve Maastricht citizens,⁵⁸ aged between seventy and eighty-eight, who traveled in Maastricht on foot and by bike, bus, car, or moped in the relevant period (see Appendix 1 for our list of interviewees). Our interviewees included seven male and five female citizens, most of whom had lived in Maastricht all their lives. Their travel routines covered almost the whole city.⁵⁹ The interviewees held a diversity of occupations, covering retail, education, and technical jobs. The interviews were recorded (except for one) and transcribed.

In order to understand the actors' practices, the interviews were semi-structured and based on a topic guide format. Semi-structured interviews have the advantage that they allow for in-depth exploration of the thoughts, feelings, and reasoning of the interviewees.⁶⁰ At the start of the interviews with the travelers, they were asked with which modes of mobility they traveled in their daily routines before and after they got access to a car. Subsequently, the interviews focused on their travel practices in each of these periods. Open-ended questions were followed by prompts arising from the concept of social practice, regarding materials (such as "infrastructures and transport vehicles/artefacts"), meanings (both social meanings and individual emotions), and competencies (which we split into "knowledge and skills" and "financial capabilities").

In addition, we studied all Maastricht Yearbooks from this period to gain a detailed understanding of the political, infrastructural, and town planning developments in Maastricht. The Yearbooks were written for the city government and always addressed the key developments in the city in a particular year. Thus, they arguably represent the city government's public views on cycling and other modes of transportation. In addition, we studied articles in local newspapers. We searched an extensive digital newspaper archive (Delpher) with terms such as "cycling" and "parking." Finally, the analysis included historic local policy documents (both official reports and government internal meeting reports), which were obtained from the City Hall archive and the regional historic archive. This resulted in about forty relevant articles that were analyzed in more detail. The written sources also included travel statistics for Maastricht, which contributed to our understanding of the shift of the modal split (bike/car/public transport) in the period we studied. Finally,

an unpublished report by Eric Berkers on the history of cycling in Maastricht contained important local data on bicycle use and policies.⁶¹

For the analysis of our primary data, we transcribed all interview recordings and then followed two main analytical steps. In the first step, the interview was coded. For this, we developed an initial coding framework based on what we initially took as elements of social practice. Two researchers coded each interview individually, followed by a joint discussion to compare coding. This resulted in some alterations to the list of codes (e.g., adding mobility policy incentives, such as parking tariffs) and an improvement of the uniform interpretation of codes.

In the second step, we analyzed and discussed the coded interviews between the three of us, generating a joint interpretation of overall findings regarding the changing travelers' practices. Using the range of written sources allowed us to triangulate our interview data and to answer our research questions: how did (growing) car mobility coevolve with (declining) cycling in Maastricht, and how did this transformation unfold?

Section 4: Transforming Mobility Practices

The various ways of traveling in the city of Maastricht, on foot, by bike, by bus, by moped, and by car, are very much intertwined. From the 1950s, all these modes of traveling are practiced simultaneously, even though the various users have their preferences for one mode or another. It is clear from the interviews that the car becomes more dominant in the late 1960s, but this does not mean that walking, cycling, or using mopeds completely disappeared.

4.1 Period 1: Cycling Commonplace

Cycling is Normal; Everyone can Cycle

In the 1950s the bicycle was the standard way that one traveled through the city; as our interviewees remarked, “everyone had one” (interviewee #9), “one could just cycle everywhere” (#5), “it went fine” (#4), and “it was normal” (#3). Shortly before the war, the Servaas bridge, connecting the two sides of the city center, was among the busiest routes for cyclists in the country: no fewer than fourteen thousand cyclists crossed the bridge during a fourteen-hour period in 1935.⁶² In 1953, about 9,500 cyclists crossed the bridge daily just during the rush hours, compared to almost 1,500 cars and 5,300 pedestrians. That year there were still no more than eighteen cars per thousand inhabitants.⁶³ At the end of the 1950s this number had doubled. In 1958, the numbers of cyclists and pedestrians on the Servaas bridge were about the same as in 1953, but car traffic had increased by 30 percent to about two thousand daily.⁶⁴ The diffusion of the car not only shaped new meanings,



Picture 1. *Cycling along the Vrijthof in the 1950s.* Source: Regional Historic Centrum Limburg (RHCL), Photo collection GAM, inventory numbers 14692 (Picture 1).

competencies, and infrastructures regarding this mode of transport, but inevitably also regarding cycling.

Cars Are for the Rich; Expensive, “Representative” Vehicles

In the 1950s, most people did not own a car. A car was still very expensive. According to several interviewees, people who owned a car in the 1950s were either rich and had a high-ranking function in society, or they needed the car for their jobs (interviewees #7, #11). In particular, people in retail or with their own shops had cars in those days. Interviewee #8 noted that their family, as shop owners, were among the first people in the neighborhood to own a car; they considered it important not to show off too much with it: “with a car you were rich.” For this reason, they also made sure that other people could benefit from their car, especially by organizing family trips by car on Sundays. According to interviewee #8, owners of a retail firm, the car had to be “representative” and therefore they had to buy a new one every four years (financed by their business). Clearly, therefore, the car in 1950s Maastricht had representational value and was connected to status, comfort, and luxury. It was also closely linked to prosperity: “traffic brings prosperity and prosperity brings more traffic,” as the Maastricht Yearbook of 1955 observed.⁶⁵

Cars are Convenient

Others would use the car of a family member in the 1950s. Interviewee #3 started using the car of his father, who was also a retailer, when he was eigh-

teen. This was rather extraordinary in the late 1950s: not many boys of that age drove a car. “I used the car for short distances in the city. Just out of convenience. For running some errands. That became normal very quickly” (#3). He could easily find parking space close to his house at the market square, “and our clients also found it very convenient to park so nearby. We were not happy when parking spaces diminished.” He emphasized that the car (as well as the moped) brought comfort and convenience compared to cycling or walking.

Other interviewees told us that the car was very comfortable and helpful for carrying larger amounts of shopping: “the facilities in the city center were very different compared to today. Shops in the center had a different type of supply. It was quite normal to buy large packages of stuff (such as toilet paper) in the department stores downtown” (#11). Interviewee #4 confirmed that “it was very normal to park directly in front of the V&D [large city-center department store], switch on your flashers and go in to do some shopping.”

Squares Are Parking Lots

As a regional shopping and tourist center, Maastricht attracted many visitors from across the border. The two big squares downtown, the Market and the Vrijthof, were fully parked on busy days, including with many German and Belgian cars.⁶⁶ Despite being relatively extraordinary, the car was therefore already very present and visible in the city—which led to public discussions about how to keep the attractive historical character of the city center intact while accommodating “modern traffic” (i.e., cars).⁶⁷ Plans to create more space for traffic in the city center were suggested in the 1950s, but they met with strong resistance because this would mean tearing down parts of the historic buildings. Both local newspapers and documents by policymakers from the 1950s testify to the strength of the local “heritage lobby”: the premodern infrastructure of the city center, although a major obstacle for all forms of traffic except pedestrians, was quasi-sacrosanct. “Maastricht remains implacable concerning the conservation of monuments.”⁶⁸

No Cycling Advocacy

There is a strong contrast between the presence of cars and the absence of cyclists in public discourses in the 1950s—a remarkable reversal of their actual levels of use. While local traffic statistics, historic photographs, and our interviewees all suggest that the bicycle was used by many as a common way of moving around the city in the 1950s, the concerns and interests of cyclists were unaddressed in the local newspapers. Bicycle lanes or paths, for instance, were simply not discussed in the news reports concerning Maastricht, except when interlocal touristic bicycle routes were concerned. In the local newspapers of the 1950s one can find more articles devoted to the interests of (shopping) pedestrians than dealing with the interests of cyclists. News reports involving cyclists were almost exclusively devoted to three themes: traf-

fic accidents, bicycle theft, and bicycle races (which were particularly popular in the region).⁶⁹ In local public representations, therefore, cycling was only visible as a leisure activity or a sport, or when it was associated with trouble.

The silence in newspapers about cycling as a major mode of transport in the city was mirrored by a silence from the local policymakers. In the minutes of the local Traffic Committee around 1950, a local governmental body in which the responsible alderman, the chief of local police, and the head of urban planning were represented, car driving and parking were extensively discussed, while cyclists were hardly ever mentioned.⁷⁰ On the rare occasion that cyclists were mentioned by the Committee, it was noted that many of them felt unsafe cycling across the Servaas bridge because of the busy car traffic.⁷¹ In the official plans for the modernization and extension of the city in the 1950s, the focus was on accommodating increasing car traffic while safeguarding the city center for shopping pedestrians. Bicycle traffic played no prominent role in these plans despite the huge numbers of cyclists that still had to be accommodated.⁷²

Cobblestones

While cycling was highly invisible from a public perspective, the private experience of cycling in the city center was not always a pleasant one, as our interviewees testify. Partly, this had to do with the historical character—and status—of the city center. From the 1950s onward, the city's policymakers considered the cobblestone pavement in many streets of the city center an indispensable part of Maastricht's identity and attractiveness as a historical city.⁷³ In the limited number of streets where the cobblestones were removed in the 1960s, they were put back later (e.g., Grote Staat, 1963). For cyclists, this was far from ideal, as our interviewees noted: "Cycling was not always that easy on those slippery cobblestones" (#1). Interviewee #5 found it very difficult to cycle at the market square: "It was just like the tram rails in big cities, where you run the risk of getting stuck between the stones with your wheel. Big stones are dangerous." Another interviewee (#6) also recalled the difficulty of cycling on the pavement at the market square: "the cobblestones caused floating kidneys. Not very cyclist-friendly." At that time, interviewee #6 argued, the "brakes of bikes were not that good. There were lots of buses too. There was a dangerous section at the Tweebergerpoort: buses came from two directions and you were caught in-between as a cyclist." Thus cycling in Maastricht required the skill of handling uneven pavements and other traffic, which was not necessarily very attentive of cyclists.

Some interviewees also mentioned the differences in altitude in the city (varying between about 50 and 110 meters above sea level), although for interviewee #4, the uphill parts of his cycling routines were not a reason to consider buying a moped: "at the beginning I had to get used to it, but if you do it every day . . ."

Everyone Has Access to a Bicycle

While owning a car was clearly a status symbol for the few in the 1950s, new bicycles were still considered expensive for the many (#9). People would buy second-hand bikes, borrow a bike from someone, or share a bike with family members or even other families (#11). “But almost everyone had one” (#9). Often, kids would get a bike on a special occasion, for instance as a gift for Saint Nicholas’s Day, on a birthday, or on their first communion (#8, #9). There were not many bikes specifically for children in the 1950s. Interviewee #11 learned to cycle on bicycles belonging to a boy in her neighborhood and a girl close to where her grandma lived. These were the bikes of one-child families. In larger families, a children’s bike was considered too great a luxury. Interviewee #11 got her first adult-size bike, like many others, when she was ten years old. “Because the saddle would be too high, the bicycle repairman would fix a wooden block on the pedals to make it possible to reach them from the saddle. This was very common at the time, but it made cycling quite tough.”

One-Speed Bicycles

Other interviewees confirmed that they “never had a new bike. I could always borrow one from my father or brother” (#3). And someone else: “I was the third child so I always had to wait until I could get a bike from an older brother, when he got a new one” (#4). Some interviewees (e.g., #5) practiced cycling with the bikes of their schoolmates. One of our interviewees (#6) got his first bike at primary school. The saddle was much too high for him. One day, he cycled to Valkenburg and back (a round trip of 30 km) standing on his pedals because he could not reach the saddle. Later on, he got a better bike with three gears and better brakes. This was an expensive bike compared to his father’s salary. Interviewee #7 also got a second-hand bike as his first bike. It was a black bike in an English brand. His father bought the bike from someone in their street and painted it black himself. The cheapest and most common bicycles in these years were traditional, heavy, one-speed Dutch bicycles, not well adapted to the hillier parts of the city or the surrounding countryside.⁷⁴

Sufficient Road Space

Most of our interviewees used bikes a lot before they became car owners. Interviewee #3 did everything on his bike before he got his car in 1958: “it was very normal to go on the bike. Everybody who had to go a little bit further away from home used the bike.” Except for on particularly busy days or at junctions, there was sufficient road space, and cycling “went fine” (#4). “We sometimes went to sit along the Tongerseweg to watch cars for a few hours, and then we would see thirty” (#1). There were not many cars on the road (#3, #12).

Some interviewees stopped cycling almost completely after they acquired a car, but others loved their bikes so much that they kept cycling. One inter-

viewee even chose not to opt for a moped because he loved pedaling so much, although, as he remarked, it was a lot easier to get the attention of girls if one had a moped (#6).

All in all, car driving in the 1950s derived its meanings mainly from its associations with prosperity, convenience, and business: cars were a respected and luxurious status symbol, an “attraction” on the street as well as in public discussions and official plans. As a material expression of this, in the 1950s cars were still allowed to occupy the historic squares in the city center for parking. Cycling, on the other hand, was the common way to travel, and everyone had access to a bike, either owning one (which required a reasonable amount of money) or through family and friends. There was generally enough road space for cyclists, although, in the course of the 1950s, some holidays and particular junctions started to show signs of congestion. Cycling did require at least some competence in terms of agility and fitness in the Maastricht context. While the material setting of narrow, cobbled streets in the historic city center was not ideal for either cars or bicycles, it was the cyclists who suffered most from the increasing competition for space that started in the 1950s. Though common, cycling was largely invisible in the public press and discourse—except as a sport or leisure activity, and one mostly referred to in terms of accidents. Omnipresent yet collectively invisible and unrepresented, cyclists were largely uncared for in 1950s Maastricht, where the dominant public values of commerce and heritage conservation held each other in check and largely prevented changes in the materialities of the city center. Separate bicycle infrastructure was not developed. Only those cyclists who enjoyed the activity of pedaling or were not affluent enough had good reasons to keep on cycling when motorized alternatives became available.

Figure 3 depicts, in a stylized way, the situation of the 1950s, in which the bicycle was the standard way of traveling in the city, while few people could afford a car. After 1960, however, this started to change.

Period 2: Rising Automobility in the 1960s

Affordable Cars, Affordable for Many

In the 1960s, wages in the Netherlands increased by approximately 6 percent annually, while car manufacturers had started to offer more affordable cars (e.g., DAF 600 in 1959, Fiat 500 in 1957). Virtually all our interviewees reported being able to purchase a (in most cases second-hand) car in the 1960s or 1970s (see also Figure 5b). The number of locally owned cars almost tripled from 4,142 (or forty-five cars per thousand inhabitants) in 1961 to 11,360 in 1969.⁷⁵ In the course of the 1960s, it became ever busier on Maastricht’s roads. Statistics show that the two Maastricht bridges in 1967 (Servaas and Wilhelmina) accommodated thirty-five thousand motor vehicles and twenty-five thousand cyclists and mopeds per day between 7:00 a.m. and

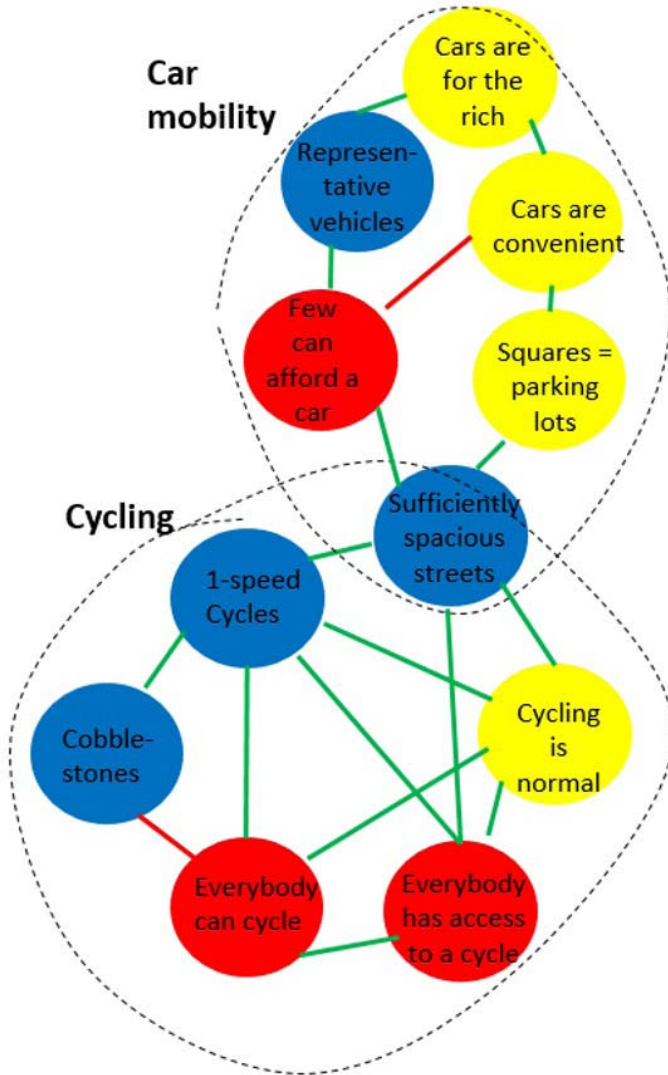


Figure 3. Cycling and car mobility in the 1950s in relation to each other. (The yellow bubbles refer to meanings, blue to infrastructure and materialities, and red to competencies, reflecting the paragraph headings in the text. A green line indicates a successful link with another element of the practice, while black and red arrows indicate neutral and unsuccessful relations respectively.)

7:00 p.m. (outside the tourist season).⁷⁶ During rush hours, the number of cyclists (including mopeds) on the Servaas bridge dropped from 11,000 in 1958 to 7,222 in 1967, while the number of pedestrians stayed about the same and the number of cars rose by 50 percent, from 2,000 in 1958 to 3,100 in 1967.⁷⁷

Cars Are Convenient

Interviewee #7 stated that the car was a new phenomenon for him in the late 1960s, and therefore “it had to be used.” It was very convenient, you could sit dry inside, and you could drive everywhere very easily. Gasoline was not expensive. He also used the car for short distances, such as family visits in the city. After the extension of Maastricht with several new neighborhoods in the 1960s, distances to the city center increased, and this made the car and the moped even more attractive.

Cycling (Still) Normal

Interviewee #6 got his first car in 1968/1969, but he did not use it very much—only for shopping and making trips for leisure. He used to cycle to his work in industry and always went for a recreational biking tour in the area around Maastricht on Sunday mornings. For him, the bike meant “freedom.” Another interviewee (#4) made clear that the bike also played a role in social life in the 1960s: “We cycled together through the city center, with five or six guys, to make an impression, to show off.”

Walking and Bus Mobility

In Maastricht, perhaps more than in other cities, walking was also a dominant traveling practice. Women in particular preferred walking over cycling. Girls and women would dress up nicely and go to town “to see and be seen.” According to interviewee #8, “the bicycle was less appropriate for this, as you would look completely disheveled.” On foot, hair and clothes would stay more decent. For a quick errand, you would take the bike, but to laze about in the streets in your chic outfit, you would go on foot. “This is part of Maastricht’s culture” (#8). Initially this had also stimulated bus mobility: Jenniskens notes that the local culture of going out well-dressed combined better with bus mobility than cycling.⁷⁸ Bus mobility had grown from 6.5 million yearly travelers in the early 1950s to ten million by 1960, before peaking in 1966 at eighteen million travelers. After 1963, because of the rising wages of the drivers and other personnel, the municipal bus company increased their tariffs steadily, despite the subsidies they now also received, just as their (eight) counterparts in other Dutch cities did. After 1967, the number of travelers slowly decreased to ten million yearly by 1988, which can be explained by a combination of increasing car mobility and the yearly increase of tariffs.

Crowded Streets and Squares

During the 1960s, car traffic in the inner city became increasingly associated with dirt and pollution. Initially, a car could be parked anywhere. By the end of the 1960s, it had become much more difficult to find a free parking spot, and congestion in the inner city increased. As the author of the 1965 Yearbook argues: “the Vrijthof Square’s climate is seriously damaged by the exposition

of transportation tin in dust and mud, by exhaust fumes and sickened trees.”⁷⁹ There are concerns that the inner city’s quality of life seriously suffers from the amount of motorized traffic, but interestingly the monuments and the pedestrians rather than the cyclists are portrayed as the victims. In the 1960s, concerns about Maastricht’s cultural heritage are still prominent in the traffic debates: “[Maastricht’s] richness of monuments in the inner city does not allow space for the necessary [traffic] connections.”⁸⁰ And “it should be clear how difficult it is in an old and monumental city, to lead the modern, quickly expanding traffic into lanes with a sufficiently fast flow.”⁸¹

The Center Should Be Car Accessible

The alternative option was to reduce car traffic in the city center. However, this led repeatedly to very vocal protests from shop owners, who feared a reduction of their business (as noted in various newspaper articles). In fact, although a few streets in the city center became pedestrian-only from the late 1960s onward, Maastricht city center remains largely accessible by car (even to this day). The building of a parking area below the Vrijthof square played an important part in this.

Squares Should Be Open

In the debate about parking in the inner city, many citizens of Maastricht shared a vision with the city government: to have public squares clear of cars wherever possible. Their aspirations became particularly manifest in the discussion about the Vrijthof square, which had served as a public parking area for a long time. In a newspaper article from 1964, for example, a citizen expresses his regret that his Vrijthof

has become an open-air garage, with clouds of dust in the summer, with puddles and mud when it rains. A pedestrian cannot walk, children cannot play there. This supposedly most beautiful square in the Netherlands is no more than ordinary chaos. And when some foreigner says the Vrijthof is a huge disappointment, he cannot resist but to wonder: Yes, why don’t they do something about that?⁸²

Thus, the Vrijthof’s cultural meaning as the common “living room” of the city, as the locals called it, conflicted with its function as a car park. In order to meet the needs of all parties involved, the local government proposed building a garage in the heart of the city and giving the city its square back⁸³ (see Picture 2 and 3).

Cycling More Challenging

The growth of motorized traffic made cycling more dangerous and less convenient. Initially cars and cyclists mixed, and cyclists especially feared buses (“those yellow colossi”). In the middle of the 1960s there were about one hun-

dred bus accidents a year.⁸⁴ Many interviewees could give accounts of a cycle accident involving them or people they knew (see also Figure 5c). Meanwhile, newspapers remained largely silent about cyclists and their interests in the 1960s. Apart from reporting on accidents, bicycle thefts, and bicycle races, the newspapers now also started to report negatively about the high numbers of parked bicycles—not as a problem for cyclists, but as a nuisance for pedestrians and for car owners looking to park themselves.⁸⁵ In a local newspaper report about the high number of left-behind bicycles from 1962, it was remarked that the bicycle had by now lost its “honorable” position to faster and more efficient vehicles, and a policeman was quoted as saying: “People are not interested anymore in a bicycle. They are more interested in mopeds than in bicycles.”⁸⁶ As far as the ever-increasing number of accidents was concerned, one popular writer in a local newspaper praised in a tongue-in-cheek manner the invention of the home-trainer, as only daredevils were brave enough to use an ordinary bicycle to move through the intense traffic.⁸⁷

Mobility Planning: More Car Infrastructure

The 1960s were characterized by some major infrastructural projects in Maastricht that were supposed to open up the city and accommodate the increasing number of cars. Triggered by growing congestion issues, with further growth in private mobility foreseen, the municipality of Maastricht, in cooperation with other stakeholders, began a planning process for more space for cars through several infrastructural developments. A new bridge, the JF Ken-



Picture 2 and 3. Parking at the Vrijthof square in Maastricht in the 1950s (left) and 1960s (right). Source: Regional Historic Centrum Limburg (RHCL), Photo collection GAM, inventory numbers 20325 (Picture 2).

Source: Regional Historic Centrum Limburg (RHCL), Photo collection GAM, inventory numbers 27055 (Picture 3).

nedy bridge, was built (in 1968), ample space for car roads was planned in the extension of the city with new neighborhoods,⁸⁸ a canal was filled up in favor of more parking spaces (in 1963–1967), and, moreover, other parking facilities below and above ground were planned.

Representatives of businesses and entrepreneurs located in the city increasingly lobbied for extending parking capacity in or close to the city center during the 1960s. This was important for them because they felt that a lack of parking facilities was a threat to their shops. In addition to the planning of one underground and two aboveground parking garages, at least in one case, a space previously reserved for bicycle parking was changed into a space for parking cars.⁸⁹

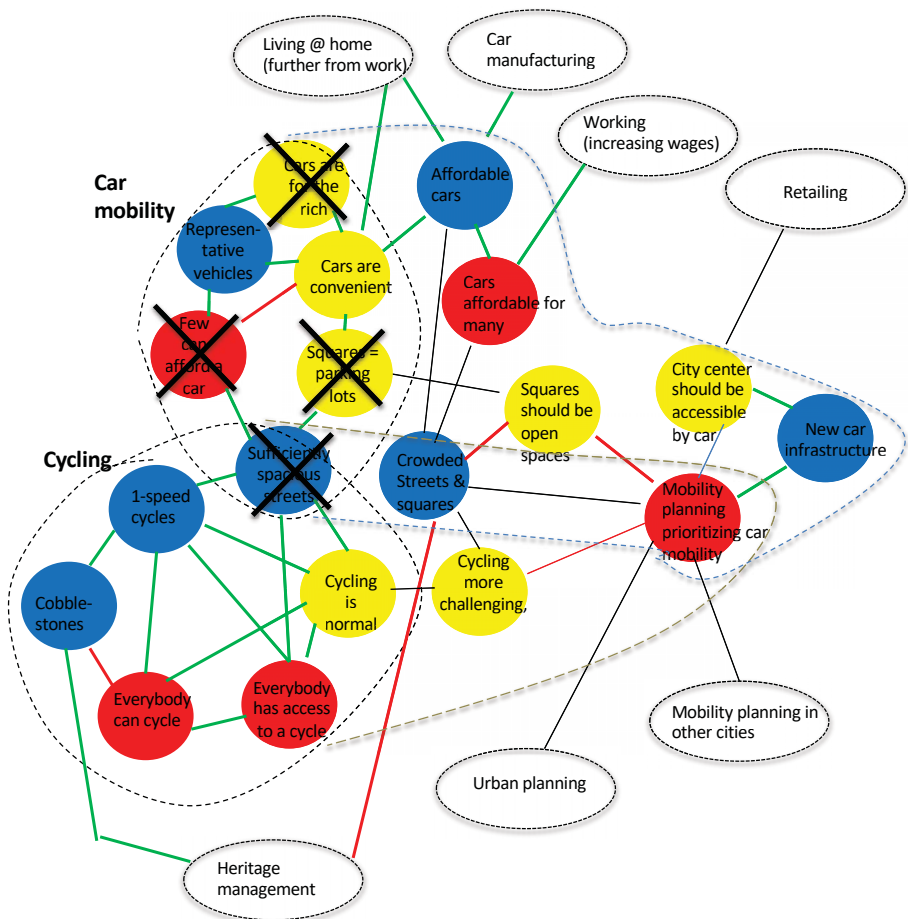


Figure 4. Cycling and car mobility in the 1960s in relation to each other and to neighboring practices, reconfigured from the situation in the 1950s (see Figure 3). (Elements outside the dashed lines are new, while those with a cross disappeared.)

At the same time, more space was given to pedestrians by closing some parts of the city center to cars and turning them into pedestrian areas. For cyclists, this was not an improvement, as they were also banned from these streets (at least during shopping hours). In 1965, a major shopping street (Grote Staat) was closed to cars and became a pedestrian area. This had a huge impact on some people. People had to drive much further. But for people shopping in the streets, it was much more convenient, because before, one could only use the pavements, and now one could use the whole street for strolling and lounging (#3). According to interviewee #4, the closing of the Grote Staat “was a drama.” Many people were against its closure to cars, because they were used to parking directly in front of the big department stores, shopping, and getting back to their cars. Later, it became more accepted to have pedestrian areas without car access (#4).

This analysis has shown that in the 1960s, people’s competencies to buy a car increased: wages increased and owning a car became more affordable. Urban extensions in Maastricht resulted in more people living in suburbs at larger distances from their work, making car ownership more attractive. The new neighborhoods did not have a cycling infrastructure with separate cycling lanes. This contrasted starkly with the municipal investments in car infrastructure and parking. The dominant idea that the city center should be accessible by car conflicted with the frustration that Maastricht citizens felt when they saw their public squares filled by cars. A solution was found in underground parking, in the middle of the city center. In this period, cycling in Maastricht dropped to a lower level than in many other Dutch cities. Some interviewees liked to link this to Maastricht’s dress-up culture: cycling was less appropriate for visiting the city center in your best clothes “to see and be seen.” But in fact, it was the result of continuing underrepresentation of the interests of everyday cyclists in the public domain—in politics, policies, and the press—as noted above. Unlike pedestrian shoppers (including those who had parked their cars in the city center), Maastricht’s cyclists in this decade were left largely unprotected amid rising automobility. As a result, cycling in the streets of Maastricht became increasingly unattractive.

Period 3: Massive Car Use and Parking Problems

Cars Are Convenient

In the 1970s, car mobility continued to be seen as a comfortable and convenient way to travel compared to cycling. One interviewee (#4) especially enjoyed his first leased car, which he received from the project developer for which he started to work at the end of the 1970s. He drove seventy to eighty thousand kilometers per year for his work: “that car was amazing . . . a 2.3 diesel engine, you could really drive fast. The motorways were nicely empty.”

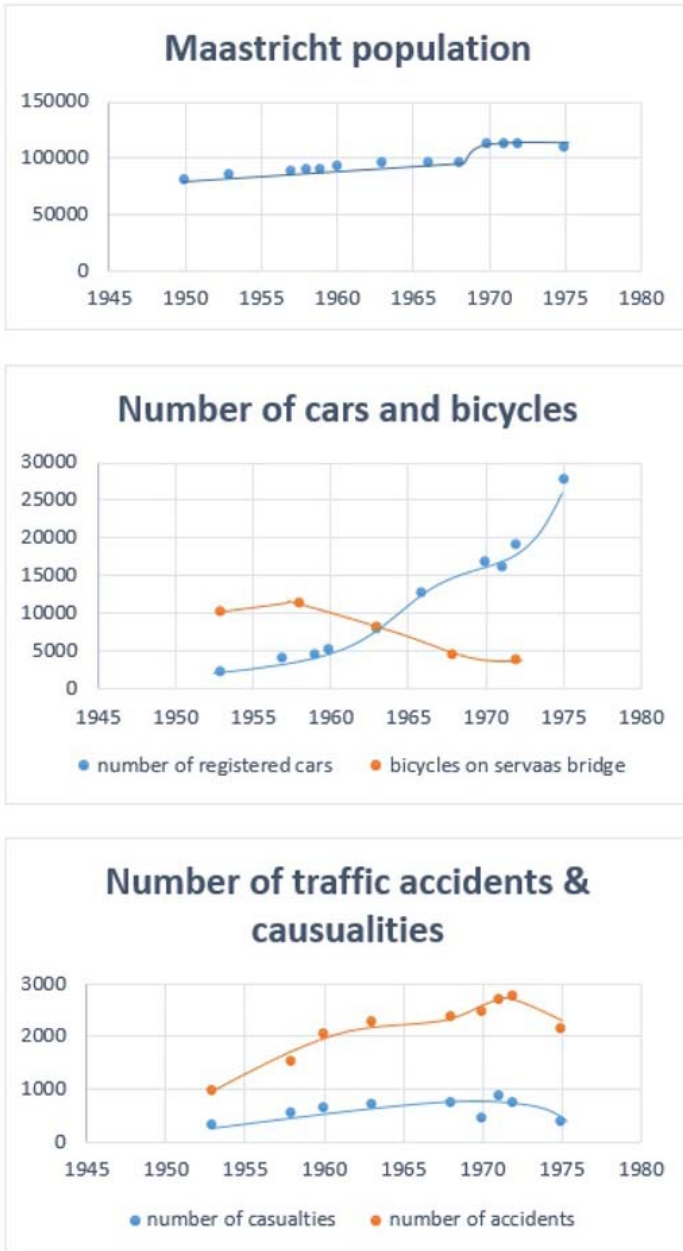


Figure 5. Trends of (a) population numbers, (b) numbers of registered cars and bicycle/mopeds counted on the central bridge, and (c) numbers of accidents and casualties in Maastricht 1950–1975.

Source: Statistisch Overzicht Gemeente Maastricht (1953–1975).

Accordingly, car mobility increased further. Most cars crossing the river Meuse used the Wilhelmina bridge, or from 1968, the Kennedy bridge. The total number of cars crossing the Meuse on an average day increased from 67,700 in 1972 to 77,530 in 1980. The number of cyclists crossing the Servaas bridge during peak hours was 3,478 in 1972, for the first time since the 1950s lower than the number of pedestrians (4,160).

Parking Garages

The new parking under the Vrijthof square (installed in 1971) was widely appreciated by citizens, because all cars disappeared from the square and adjacent streets: “That square was always full of cars, one big car mass. While it was referred to as the most beautiful square of the Netherlands!” (#4). Later, in 1977, an underground parking area was created at the OLV square, another city center location. Before that, however, it was also quite easy to park your car at the OLV square. As interviewees #5 and #9 recalled, that square was also full of cars, but there was a very good-natured car park attendant who would help people get parked.

New Road Infrastructure

In other parts of the city, trees were sacrificed to make space for cars. Interviewee #5 was upset about the tearing down of large trees along one of the circular roads around the city center, the Hertogsingel, in the 1960s. There used to be a road with a broad path in the middle, lined with big trees. Children would play in that middle area, people would go for walks, and he used to cycle there a lot. This was made impossible by the reconstruction of this road, allowing more space for cars and less for cyclists, pedestrians, and playing children.

Cycling More Challenging

Cycling came under more pressure in this time period. The city center did not have cycling lanes in the 1960s and 1970s (#6). In the construction of new neighborhoods in the 1960s, such as Oud-Caberg, cyclists were not taken into consideration. And the roads became busier and busier with cars and big trucks: “Because traffic became busier, you were referred to the gutter, as a cyclist. The pressure increased. Due to the enormous amount of lorry traffic (also Belgian lorries), you became pushed to the sidewalks as a cyclist” (#5). The “invisibility” of the cyclists in public representations continued. After 1972, the annual statistical report of the city, which since 1954 had included cyclists in its traffic counts, even stopped counting the cyclist traffic, and only reported on car numbers. Bicycle policies kept being largely focused on recreation. Upward change in the value of cycling came from outside and only in the second half of the 1970s. Inspired by the formation of a new national

association of utility cyclists in 1975, a Maastricht branch was founded that presented its first proposals to improve the situation for cyclists to the city government in 1976. Still, the attention in the local newspapers on these efforts was minimal compared to publicity in other regions in the Netherlands.⁹⁰ The other push for more attention to utility cycling came from the national government, which set up a national subsidy program for bicycle paths and required cities to come up with plans to improve cycling if they wanted to receive national subsidies for public transport. This resulted in the first Maastricht policy document devoted to cycling in the city in 1979.⁹¹

Professionalization of Underground Parking

In the years following the opening of the Vrijthof garage in 1971, a number of processes unfolded, entailing various kinds of novel competencies, that (quite literally) cemented underground parking as common practice. The first process was the further development of parking operations, a new practice at the time, and an associated business model (the investor, Ruyters bv, was granted rights for building and exploiting four gas stations in Maastricht as compensation for the inevitable losses due to the construction of the expensive underground garage). After the construction of the Vrijthof garage, the municipality's working group in charge of this project continued to operate and conducted research studies into building parking facilities in other locations as well—three more in the 1970s (see Table 1)—so the lessons learned became part of the local government's organization. Moreover, Ruyters was involved in many of the subsequent garages in Maastricht (and later became a multinational, Q-park, with more than 870,000 parking spaces in over 6,300 facilities across ten countries). The legal embeddedness of the parking garages (most of the operational contracts with operator Ruyters, later Q-park, were for fifty years!) implied long-term commitment to them.

Table 1. Public parking garages in Maastricht.

Name	Year opened	Capacity (spaces)	Operator	Owner
Vrijthof	1971	500	Q-park	Municipality (leasehold Q-park)
Entre-deux	1971	270	Now closed as public garage	-
Gubbelstraat	1972	400	Closed and rebuilt as Mosae Forum (2005)	- (was BP)
Onze Lieve Vrouwe (OLV)	1977	350	Q-park	Q-park

Mobility Planning Prioritizing Car Mobility

The second process was the adaptation of traffic policies. Since the new parking garages provided a significant increase of parking capacity for Maastricht, implementing parking garages required changes in the existing traffic circulation plans and associated parking policy. Traffic experts from the city of Delft were invited to share their knowledge and experience in urban traffic planning. The parking capacity of garages became an important factor in the “parking balance” of the city, and entrances and exits of garages were attuned to the (often one-way) use of streets. Furthermore, the parking tariff paid in the garages triggered other parking policy discussions, such as arguments for introducing paid parking in surrounding streets to make the garage more attractive (and financially viable). In that regard, the building of parking garages can be considered the beginning of a new phase of parking policy and traffic circulation planning: one in which regulations were attuned to the (growing)

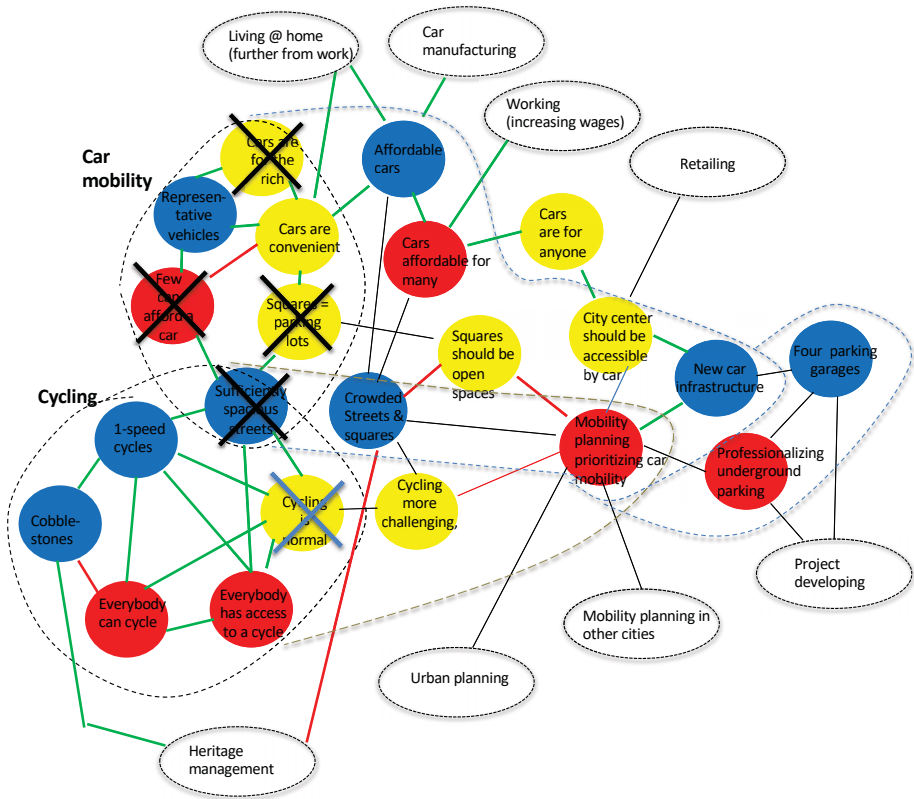


Figure 6. Cycling and car mobility in the 1970s in relation to each other and to neighboring practices, reconfigured from the situation in the 1960s (see Figure 5). (Elements outside the blue dashed lines are new, while those with a cross disappeared.)

capacity of underground parking supply. The larger underground parking supply gradually came to be seen as “indispensable” for the accessibility of the city of Maastricht.⁹²

A third process related to the traveler. The stricter regulations for on-street parking and the expansion of underground parking entailed a mental change among car travelers. Initially, “Maastricht citizens [were] upset about the fact that they [were] no longer allowed to park their cars everywhere and for free on the square.”⁹³ With visitors from Belgium and Germany easily accepting being charged for parking, Dutch drivers soon followed suit.

The extended road and parking infrastructure, together with the altered cultural values of historic squares and urban car use, the competencies of urban planners, the development of parking operators, and parking and traffic regulations, resulted in a tightly aligned and increasingly obdurate car mobility practice.

In the course of the 1970s, the road space for cars and bicycles became more separated into lanes and “people stuck more to the traffic rules” (#4). It gradually became less dangerous to cycle. The car-free pedestrian zone and shopping area in the city center was slightly extended, although this resulted in parking problems for bicycles, as it was forbidden to park bikes in this zone.⁹⁴ A traffic circulation plan that was adopted in 1977 aimed at giving more space to slow traffic and public transport and tried to limit the amount of through-traffic in the city center.⁹⁵ A period of barely constrained accommodation of car mobility had come to an end.

Section 5: Discussion and Conclusion

History of transport studies generally agree that increasing average affluence and dramatically decreasing costs of individual motorized transport (mopeds and cars) were essential factors in people opting for car driving instead of walking, cycling, or public transport. We can also recognize this in the case of Maastricht. Some authors in this field suggest that in this way, the car simply replaced the bicycle. According to Colin Pooley and Jean Turnbull’s analysis, the car was just an improved version of the bicycle for individualized transport, and the change from cycling to driving was both prepared for by the bicycle and a logical step forward as soon as the car became affordable.⁹⁶ This may be correct for most Anglo-Saxon areas. But if this were more generally true, one would have difficulties in explaining local and national differences in the mobility transformation from cycling to car driving as a hegemonic way of traveling, in particular our findings for Maastricht. In the case of Maastricht (as in many other Dutch cities) we found that travelers substituted only part of their travel routines with car mobility, such that the nonmotorized two-wheeler—cycling—in fact coexists with car mobility.

As Oldenziel et al.⁹⁷ show, this was true in most Dutch cities (only Heerlen is somewhat of an exception). Still, we find that this pattern in Maastricht also differed from the Dutch cities in the middle and north of the country: Maastricht showed a steeper decline of the cycling share than did the rest of the Netherlands. It seems that interest representation of cyclists was weaker than in other Dutch cities, resulting in their invisibility in the local press and their neglect in local traffic policies. There was also a regional aspect to this. The oldest national interest organization for cyclists, the ANWB (Algemene Nederlandse Wielrijders Bond), which at least until World War II was instrumental in keeping elites interested in cycling, was from the beginning less well established in the province of Limburg.⁹⁸ Furthermore, provincial policies regarding cycling early on facilitated sport and tourism rather than everyday cycling.⁹⁹ Strikingly, a provincial fund for building bicycle paths established in 1956 was hardly used, and in 1968 was terminated in favor of a fund for recreation and tourism.¹⁰⁰ In fact, the official neglect of everyday cyclists in Maastricht only ended when the national government in the 1970s required a plan in favor of cycling from the local administration if the latter wanted to receive subsidies for their local public transport company! Apart from the weak interest representation of cyclists, the strong local appreciation of historical heritage stands out. The resulting resistance to changing the age-old layout of the city center not only made the separation of traffic modes difficult, but in combination with the strong commercial interest representation in the city, it also triggered the construction of a range of underground parking facilities. These kept directing car traffic to the city center, thus increasing the competition with cyclists for the limited space available.

Our SPT-based analysis showed that there was no neat shift from cycling as the most performed practice to car mobility, but a coevolutionary process of entangled practices. Cycling and car mobility changed under each other's influence, as new elements introduced in one of the two had implications for the existing elements of both practices. The key dynamics can be summarized as follows. Throughout the three decades, we see initially a web of mostly successfully linked elements around cycling: everyone owned a bicycle and could ride it, and there was ample space on the streets. At the same time, there were unsuccessfully linked elements (i.e., constraints) on car mobility: although the car was widely seen as convenient and comfortable, most people lacked the financial capabilities to own and drive a car. When affordable cars were introduced ("imported" from neighboring practices, outside Maastricht), this started to change. Car mobility grew, but this also had implications for cycling. The growth of car mobility made roads more congested, which, in combination with poor interest representation of cycling in policymaking (for instance, regarding arguments for safe cycle paths), reshaped the meaning of cycling from "something normal" and "easy" to something "dangerous." In terms of infrastructure it simply reduced the space for cycling on the road

(in addition to the higher numbers of cars and buses, there were also parking spaces at the side of the road). Subsequently, congestion on the road and parking limitations also constrained further growth of car mobility. However, in combination with the conviction that squares should be free of cars (i.e., a new “meaning”), this paved the way for another novelty: professional underground parking facilities (i.e., a new “materiality” and “competence”). The creation of more parking space in the city center of Maastricht facilitated and accelerated car mobility growth—as in many cities at the time—but the relatively high share of underground parking in Maastricht mitigated public complaints on parking issues without diminishing the safety issues for cyclists. Practically, all attention in the public and policy discourses on traffic and mobility was on (improving) car mobility, including parking facilities, while these discourses were silent on cycling. By the end of the 1970s this had led to successfully linked elements around car mobility. Almost everyone could afford to drive a car and had the skills to drive it, and there was ample road space to drive and park.

Many studies in the field of sociotechnical transitions are MLP-based and have framed transition as regime shifts. Typically, these studies assume the initial situation to be “the regime”: the dominant practice around a particular technology with a high degree of stability or “obduracy.” Our SPT approach helped us to find that the initially largest traveling practice in our case study, cycling, was in fact not very obdurate, and thus should not be labeled a “regime.” Many aspects of cycling were relatively flexible: it was not a significant financial loss to leave one’s bicycle in the shed, and there was no specific infrastructure for bicycles, since the same road could be used for cars too. For car mobility this was different, both for the traveler and for parking facilities. When someone had bought a car, “it [was] not rational [for it] to remain unused,”¹⁰¹ while, even more so, for underground garages (build after 1971), investments and contracts spanned multiple decades (see above). Figure 7 depicts the different trajectories of cycling and car mobility in terms of degree of obduracy and modal share.

Accordingly, traveling practices in the initial situation of the study period—the 1950s—were increasingly reconfigured. We can score the “degree of reconfiguration” over time through the percentage of elements that changed in each of the two subsequent periods, compared to the configuration in the 1950s. Figure 8 presents a two-dimensional map formed by such “degree of reconfiguration” (on the *y* axis) and “the extent to which the emerging practice is performed,” in our case the “modal share of car mobility” (on the *x* axis). The four quadrants reflect possible ways in which a new practice may affect established practices. The new practice may have a more sustaining impact when it is adopted as simply an add-on to an otherwise unchanged traveling practice by a limited number of travelers (“practices reproduced”) or even when adopted by a larger number of travelers (“practices reorga-

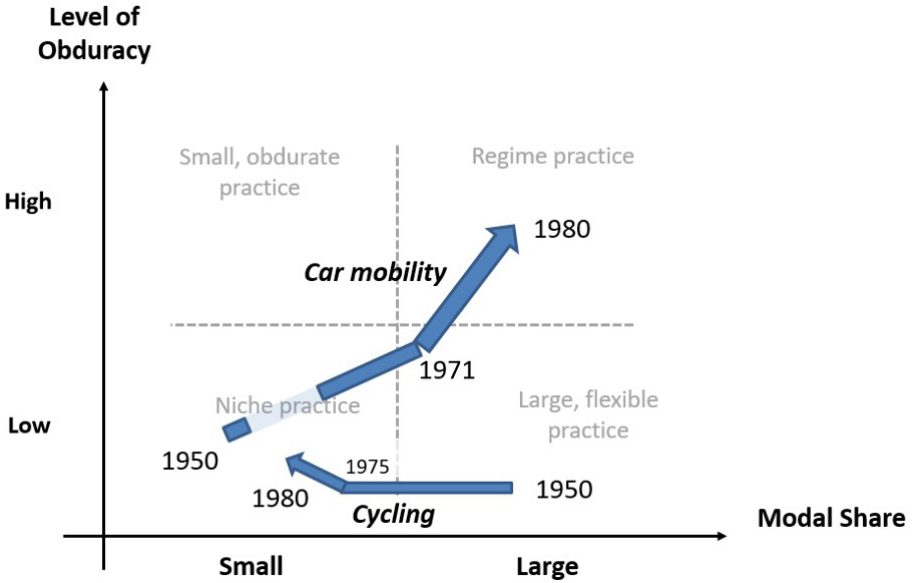


Figure 7. The relative trajectories of cycling and car mobility in a two-dimensional map of practices (based on Stanković et al. 2021 [Figure 2], now with cycling trajectory added).

nized”). The new practice would have a more disruptive impact when it fully replaced private ownership for some travelers (“practices amid diversification”) or all travelers (“transformation of practices”). Figure 8 shows a range of stylized pathways, from “no change” to “partial” to “full substitution” of the initial travel practices. Pooley and Turnbull’s¹⁰² transformation pathway (top blue line) occurs when all people get access to car mobility (*x* axis) and all actors fully replace their established practice with a new practice (*y* axis).¹⁰³ The other extreme case is portrayed by the small (green) arrow at the left bottom: a new (or reemerging) practice may also be locked out, leaving the established practices as they were. The red line depicts a more hybrid pathway for mobility practices in Maastricht. As our analysis showed, firstly, there was no simple replacement of bicycle trips with car trips. Most people did not leave their bicycles unused. Some travelers did, but most adopted a far more hybrid travel routine, with car use for longer trips (or for when carrying stuff, or when it was raining), and for many the bicycle was the standard for shorter trips. In this sense, one should not speak of “the transition from cycling to car mobility” in Maastricht, but rather of the “transformation of mobility practices from primarily cycling to primarily car mobility.” This was also true for other Dutch cities,¹⁰⁴ but, as indicated by the purple trajectory in Figure 8, these remained even more strongly engaged with cycling (hence a slightly lower degree of re-configuration). Compared to many MLP-based studies of historic transitions

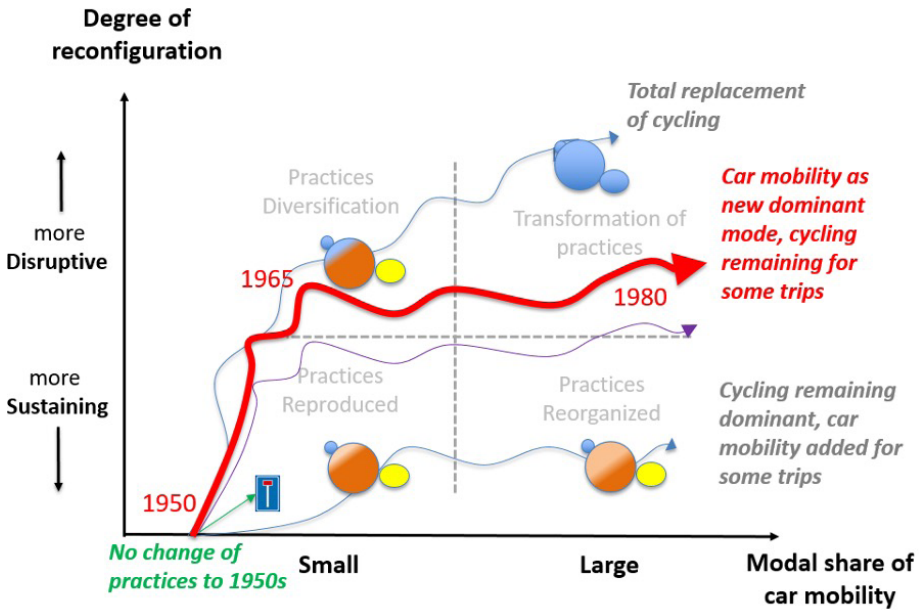


Figure 8. Stylized transformation path of the initial configuration of practices (cycling, car, bus) in Maastricht (1950–1980) depicted in red (see details of degree of reconfiguration in Appendix 2). Other possible paths indicated in blue, green, and purple. Source: 2 x 2 matrix based on Marc Dijk et al.¹⁰⁵ (Figure 2).

in other sectors, emphasizing regime shifts, the transformation pattern we find for mobility in Maastricht, based on an SPT approach, highlights a more hybrid scenario and fragmentation of practices.

We have also nuanced the observation in transport studies that cities started to accommodate car mobility as a seemingly natural and easy thing to do. In Maastricht we found many constraints to expanding parking supply in the historic city center, and only after a development of financial and technical skills, arrangements with an external investor, and adaptation of traffic policies were urban planners able to accommodate more cars in the center. As soon as these limitations were overcome, though, the (web of) constraints on car mobility, that is, a set of unsuccessfully linked elements, actually transformed into (a web of) successfully linked elements.

Furthermore, we do not suggest that the observed transformation was the only way that mobility practices in Maastricht could have transformed: things could have been otherwise. For instance, motorists could have rejected the norm of paying for parking, which might have led to the underground parking remaining insignificant or receding. There were also council members in 1969 who questioned whether the huge investments in the Vrijthof garage were really justified, and suggested building facilities in other, not so centrally

positioned places. This could have evolved toward more park and ride-type facilities, which could have spurred bus mobility or cycling (as the “ride”), possibly leading to other types of mobility practices.

Our coevolutionary and social practices-based approach helped to explain Maastricht’s transformation path in terms of entangled practices, consisting of SPT’s meanings, competencies, and materialities (see “key dynamics” summarized above). In line with Shove,¹⁰⁶ our analysis highlighted the entanglement of “consumption” practices (i.e., traveling in our case) with surrounding practices. In the case of urban mobility in Maastricht, we encountered four entangled practices (traveling, urban planning, parking operations, and retailing), which, in turn, were neighboring other practices (such as working and living at home). In future research, it is recommended to study whether it is useful to distinguish these practices more explicitly in the analysis. This may help to find a good balance of analysis beyond the dichotomy of structure and agency, with the various practices broadly reflecting different types of stakeholders. In our analysis (summarized in a stylized way in Figures 3, 4, and 6), we have not done this yet. Figure 9 gives an example of a conceptualization in this direction. It also suggests that this may be useful to introduce more types of elements than only materialities, meanings, and competencies. In particular, “policy incentives” and “business models” played a significant role in our case study, but are not clearly highlighted through the three categories. Policy incentives in the form of paid parking (which was further extended) and parking tariffs (which gradually increased) were significant for how car mobility was performed and evolved. These promoted shorter parking durations per car, which further increased the daily capacity of the center for visiting cars. All this facilitated or “invited” (or “recruited”) more car drivers into the city center. The viable business model of the underground parking operator was essential for the construction of the subsequent garages. This business model reflects the competencies of the operator, but also relates to the role of the municipality and the traveler in making the model viable. Such collective or “multi-actor structures” play an important role in the transformation of practices, and should be further understood. This deserves further study in future research.

In conclusion, we find that our coevolutionary and social practices-based perspective confirms and further develops Watson’s claim that SPT can account for change and transformations of practices over longer periods of time, and is not only about doings of local users and consumers.¹⁰⁷ We showed how local traveling practices in Maastricht were, on the one hand, clearly locally embedded, but at the same time connected to practices in other places (e.g., affordable cars from car manufacturers around the globe and car mobility policy expertise from Delft) and at other governance levels (e.g., national and provincial policy incentives). In our view, the SPT approach enables wider attention on local meanings (that are attached to practices) in the analysis

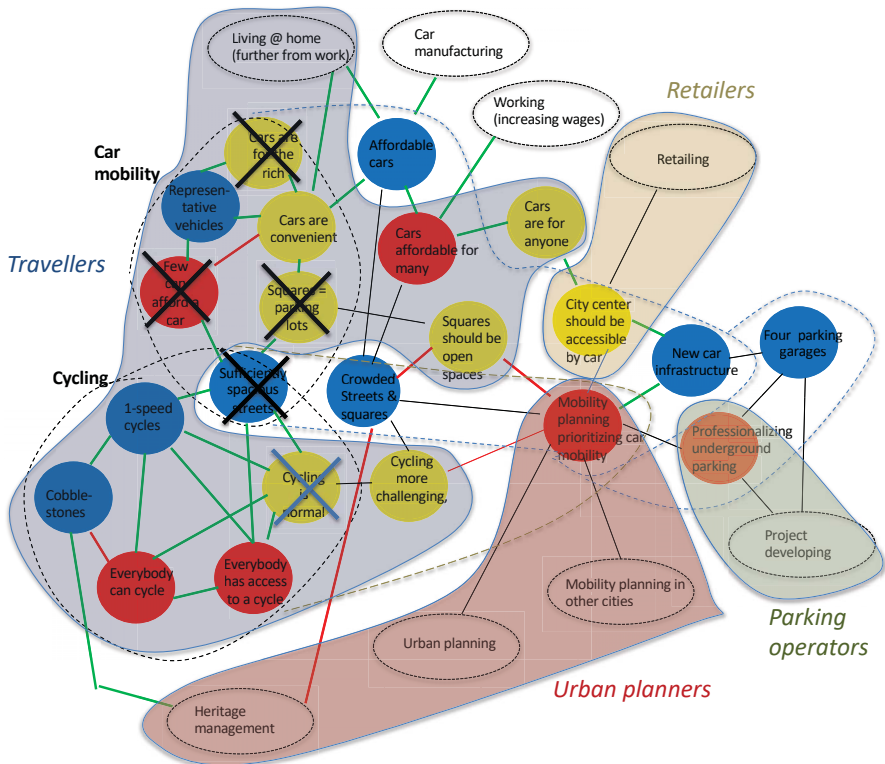


Figure 9. Urban mobility conceptualized as four entangled practices, neighboring other practices

compared to the MLP approach. This leads to more sensitivity to the local context. Therefore, we recommend that this approach be developed further into an explanation of the transformation of locally embedded practices (e.g., a more general explanation for when and why a higher degree of reconfiguration occurs), highlighting a reconfiguration of elements in the entanglement of practices.

Acknowledgments

We would like to thank the members of the MUSTS research group, as well as the participants in the EASST (2020), IST (2020), and Cycling Research Board (2020) conferences, for their constructive feedback on earlier versions of this article. We are also grateful to the two anonymous reviewers of this journal, as well as Tim Schwanen, and Martin Emanuel, whose feedback has helped a lot in sharpening our argumentation.

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Notes

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Appendix 1: List of interviewees

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2. Annie G. (1937), Malberg, Mariaberg
3. Tum P. (1944), city center
4. Guus R. (1942), Brusselseweg
5. Ger H. (1931), city center (1950s–1960s), Oud-Caberg (since the 1970s)
6. Jef B. (1935), Blauwdorp, Sint Pieter
7. John M. (1940), Blauwdorp, Sint Pieter
8. Tiny M. (1940), Sint Pieter
9. Lou S. (1936), President Rooseveltlaan (1960s), Scharn
10. Hanneke F.-B. (1950), city center

11. Margot H.-B. (1945), Wijck, Sint Pieter
12. Henry E. (1944), city center (until 1958), Malpertus
13. Traffic planner (1970–2000), Gemeente Maastricht, retired
14. Parking Operator (director 1984–2014, son-in-law of director 1971–1984), retired

Appendix 2: Scoring degree of reconfiguration

	Period 1 (± 1950s)	Period 2 (± 1960s)	Period 3 (± 1970s)
Cycling	<i>Initial Situation</i>	Change score (0 = no change; 1 = some change; 2 = big change)	Change score (compared to Period 1)
Meanings	1 element	1 (because 1 element added)	1 (no additional changes)
Materialities	3 elements	1 (because 1 element replaced)	1 (no additional changes)
Competencies	3 elements	0 (no changes)	0 (no additional changes)
Car mobility	<i>Initial Situation</i>		
Meanings	3 elements	2 (because 2 removed, 1–2 added)	2 (another 1 added)
Materialities	2 elements	2 (because 2 added, 2 replaced)	2 (another 1 added)
Competencies	1 element	1 (because 1 replaced)	2 (another 1 added)
Degree of reconfiguration compared to initial situation (proxy 0–100)		7/12 = 58%	8/12 = 67%