

Beijing's pedal-based livelihoods as a muse for bicycle urbanism

Pedal-powered vehicles and cycling as a form of mobility are significantly enriching urban life in cityscapes worldwide. Organizing urban individual mobility by bicycle rather than car can alter the use of public space, thereby raising the quality of urban life (GEHL 2010). Such strategic use of (bi)cycling to create livable and healthier cities is increasingly common in cities across the globe (GARDNER 2010) and among forward-thinking urban designers¹, policy makers or political entities² who often improve bicycle infrastructure and install bicycle supporting policies to augment urban cycling (PUCHER & BUEHLER 2008).

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From bicycle to urbanism

Yet, cycling can do more than improving urban mobility and health as pedal-powered vehicles are also means for cultural and artistic expression³, subcultural social interaction (FINCHAM 2007), economic opportunity and urban servicing (LORENZ & BUFTON 2011) which is reflected in geographically distinct bicycle cultures (PELZER 2010). In addition bicycles are complemented by tricycles and other pedal-powered vehicles which altogether offer a wide variety of mobility choices.

With such an array of meaning and functionality pedal-powered vehicles deserve to allow for the development of an approach to urbanism using pedal-powered vehicles as means of understanding, programming and developing urban form. We conceive sustainably functioning and culturally active urban landscapes animated by pedal-powered vehicles. For the process of creating such environments we propose the term bicycle urbanism⁴. Bicycle urbanism may offer novel approaches to re-imagi-

ne urban form along pedal-powered vehicles (STILGOE 2009) and create a city optimized for pedal-based mobility and culture.

For bicycle urbanism to rise in popularity innovative strategies promoting bicycle culture will be vital to shape positive perceptions towards a wider use of pedal-based vehicles. Here it may be helpful to learn from cultures where pedal-powered vehicles are deeply integrated in (urban) culture and used to organize a multitude of urban functions. We therefore suggest a bicycle cultural exchange for a reciprocal learning in terms of urban strategies related to pedal-based culture. To facilitate such a bicycle cultural exchange we are presenting research findings about the pedal-based culture in the Chinese city Beijing (and other cities). We anticipate that learning from Beijing's unique pedal-based culture can inspire strategies for bicycle urbanism in other geographical settings.

In this article we put forward that bicycle urbanism bears yet untapped potentials for policy

makers and urban designers to structure more dynamic cityscapes in a culturally, socially and environmentally sustainable way. Tapping into such potentials we show examples of how open space in Chinese cities is used in relation to pedal-based livelihoods and their importance for everyday life in Chinese cities. We conclude with strategies for a contemporary bicycle urbanism approach inspired by these examples.

A rapidly changing bicycle kingdom

The Kingdom of the Bicycle emerged after China's first five year plan of 1953 set the target to grow the Chinese bicycle industry by 60%, resulting in an annual production of more than a million bicycles by 1958 (MIKKOLAINEN 2007). From the 1950's through the late 1980's China was regarded as a global leader in non-motorized transport (RAHMAN 2006). In Chinese cities cycling was the predominant mode for individual mobility supported by a spatial mix of functions within walking

and cycling distance. The situation for urban cycling in China changed with the introduction of Deng Xiaoping's economic reforms of the 1980's which prioritized domestic car production and private car ownership. At the same time urban development of larger land parcels (mega blocks) started which significantly changed urban form in China. These policy changes and urban transformations changed the (urban) landscape for cyclists (BUFTON & LORENZ 2011) and the decline of (public) interest in cycling began. The bicycle's mode share of individual mobility has been shrinking ever since, for example in Beijing the

bicycle's mode share dropped from 58 % to 19 % between 1986 and 2010 (LIU et al. 2007, BEIJING TRANSPORTATION RESEARCH CENTER 2010) and for the first time in 2006 Beijingers were more often using cars than bicycles for transportation (CREUTZIG & HE 2009).

Currently, the conflict of tradition versus modernization leaves Chinese bicycle culture at the crossroads where cycling may further diminish, stagnate or grow again. With rapid urbanization, shifting income levels and changing societal values, Chinese urban bicycle culture will undoubtedly change further. The bicycle is already connoted by a majority of Chinese as a vehicle for the poor, yet there is evidence for a new and flourishing leisure bicycle culture in China with the bicycle often connoted as new type of status symbol⁵. At such a historic crossroad urban cycling culture in China provides a potentially valuable asset for conceptualizing a contemporary bicycle urbanism approach.

Pedal-based livelihoods in Chinese cities

In 2010 Smarter Than Car started to investigate pedal-based livelihoods⁶ in Beijing's central Hutong districts (LORENZ & BUFTON

2011) and subsequently also in other Chinese cities. Pedal-based livelihoods observed in Beijing were almost exclusively operations of individuals (98 %) and mostly (83 %) organized with tricycles (Chinese 'San Lun Che'⁷). The pedal-powered service people's age was found as skewed towards middle to older population with 56 % between 40–60 years and 11 % estimated to be older than 60 years. Most of the operators of pedal-based livelihoods were identified as male (82 %).

We group the observed pedal-based livelihoods into: mobile business and pop-up retail, transport and delivery services, mobile crafts and pop-up services, and, mobility for the less agile. Here we want to describe certain aspects of those pedal-based livelihoods demonstrating their potential for innovations in a bicycle urbanism approach.

Mobile businesses and pop-up retail

Pedal-based businesses offered a wide array of retail items, most of them were of low value but vital for everyday life, for example fresh food, sweets, newspapers, pets, or bicycle spare parts. We found a low redundancy in retail items pointing towards a high specialization of pedal-based livelihoods.



Figure 1: Pop-up confectionary store in Beijing, China selling 'tang hu lu' (Chinese 'sugar fruit'). Photo: STC/Shannon Bufton



Figure 2: Tricycle-based recycling services in Beijing, Dong Cheng district. Photo: STC/Shannon Bufton



Figure 3: Bicycle-based pop-up hair salon offering haircuts on the sidewalk in Beijing. Photo: STC/Shannon Bufton

Transport and delivery

Among the goods delivered and transported we found a wide variety of items for daily domestic use, goods to refill and recycled materials. Operators of such delivery services may pursue several economic strategies at the same time such as vending and transport services.

Mobile craft and pop-up services

Among pedal-based livelihoods we identified services of craftsmanship (hairdressing, knife sharpening, cooking, key cutting, general repair and bicycle repair) organized in a mobile way. Such services were offered in public spaces where a critical mass of customers could be served. In search for customers operators would stroll or drive through the city. We also observed a diversification of economic strategies as several services were offered by the same operator, for example bicycle repair people also worked as key cutters or sold bicycle related spare parts.

Mobility for the less agile

In Beijing we frequently observed the use of modified bicycles and tricycles as means of transport by elderly people or to transport elderly people. The vehicles in operation were stable to drive (by virtue of having 3 wheels) and low-g geared, thereby easy to propel, offering mobility and transportation for elderly and less mobile people. Some of those vehicles were adapted to transport two people, which may for example allow couples to go shopping together and transport acquired goods in a safe and comfortable way. In some cases we also observed that the younger generation was transporting the elder generation, thereby providing intergenerational mobility.

From our research it is evident that there are several types of pedal-based livelihoods in Chinese cities. But how do such pedal-

based livelihoods affect the daily life in the Chinese city and what are interesting mechanisms if we think about how to integrate such a culture in future cities?

Clustering of bicycle livelihoods

Pedal-based services and retail often group around existing businesses or highly frequented transportation hubs and corridors. This clustering of activities occurs over time as well. Groups of operators with pop-up retail stands create temporary 'urban markets' with a range of products, services and food sales (see figures 7 and 8). The clustering of pedal-based markets usually starts with one vendor in a lively urban open space, then, if the vendor successfully attracts attention, other vendors may soon join in with their mobile pop-up stands and the market is growing organically. Markets can be very adaptive to urban spatial conditions and we observed them next to subway stations (figure 7), in narrow pedestrian thoroughfares (figure 8), in front of schools, restaurants, office buildings and at the fringes of large urban open spaces. They can be linear in nature or more circular, and big or small. The clustering also adapted to different urban conditions over time as vendors change location according to specific (supposed) needs in an urban setting at a certain moment of day, week or year. An example for this is the vending of winter gloves close to subway stations as soon as temperatures drop in autumn.

Creation of fluid urban activity zones

The temporarily and spatially changing clusters of pedal-based economies and services create fluid spatial conditions and meaning in the cityscape. This dynamic and locally adapted group of services is reacting to the specific needs of communities over time and in space. This fluidity of function is



Figure 4: General repair man in Guangzhou walking his bicycle, which is equipped to repair umbrellas, offer shoe repair and shine and make general repair of a wide array of household items. Photo: STC/Florian Lorenz



Figure 5: Mobility for the elderly with the tricycle in Beijing. The bicycles used are highly adapted to service the transport of elderly people. The vehicle is equipped with a comfortable backseat and a lockable container. Photo: STC/Shannon Bufton



Figure 6: Street view of intergenerational transport in Beijing. This image shows an adapted bicycle functioning as wheelchair attached to a bicycle which also can be un-clipped from the bicycle. Photo: STC/Shannon Bufton



Figure 7: Clustering of tricycle based pop-up retail stands at a busy subway stop of Beijing's subway line two. This image was taken at evening peak hour. Businesses were clustered around the fixed newspaper vending stand and consisted of three tricycles selling cooked food and two fruit sellers. Photo: STC/Shannon Bufton



Figure 8: Clustering of bicycle-based market situation in Guangzhou China. The market is located in a car-free side street and consisted of about ten different tricycles which were mostly used to sell fresh produce such as vegetables and fruits. The image was taken in late evening after the main work hours. The bicycle in the forefront is held by the operator with its stand in the released position – ready to make an escape from security guards (Chinese 'cheng guan'). This underlines the semi-legal nature of some of the market situations. Photo: STC/Florian Lorenz

an antithesis to localized shops and services and leads to a sense of spontaneity in the urban landscape. Such a fluid urban activity zone is able to very effectively cater to the needs of different people over time. The mobility of pedal-based pop-up services and retail and the resulting fluid spaces allow for a greater sharing of space and a socially more welcoming urban experience.

The above examples of pedal-based livelihoods go beyond a mere utilization of cargo bikes for transporting goods⁸. Factors like variety of applications, spontaneous constitution of functional clusters, fluid activity zones and localized servicing demonstrate that pedal-based livelihoods can actively and successfully program urban environments. The diversity within pedal-based livelihoods shows that pedal-powered vehicles can be used successfully to organize vital urban functions such as recycling services, maintenance services and food delivery. Bicycle-based livelihoods are foremost mobile, constantly moving across the cityscape and adapted to the needs of a local community and therefore represent an efficient

way of servicing urban communities according to trends, economic situation and changing routines, all of which is difficult to achieve by a physically fixed service economy. Moreover, pedal-based service and retail facilitate a sort of pop-up urbanity by creating constantly changing urban conditions leading to a lively urban landscape through new opportunities for interaction and exchange. In an economic sense pedal-based livelihoods offer economic strategies for individuals with a low threshold in terms of initial financial investment, thereby providing small-scale economic opportunities for people. Pedal-based livelihoods can be a means for a greater mobility and agility of urban populations if pedal-based vehicles are widely used in the cityscape by people of various age groups. And, nonetheless, pedal-based livelihoods operate in a very resource efficient and carbon extensive manner reducing emissions and noise.

Re-imagining Beijing's bicycle culture in a global context

From a planner's and designer's perspective one may ask how to utilize such advantages of pedal-

based livelihoods in a culturally adapted, yet innovative way to create future cities? There are several examples of people actively engaged in exploring a contemporary version of traditional Chinese pedal-based urban culture. From such a (sub)cultural engagement it is possible to imagine an active approach for bicycle urbanism for the promotion of urban strategies and events which are pedal-powered.

In Beijing 'Smarter Than Car' is following the work of a collective which is actively re-interpreting traditional sanlunche culture staging public events in urban space where tricycles function as attractor for the public and communication-vehicle between artists and public⁹ (figure 9). The creative positioning of tricycles in public space demonstrates to us the potentials of a bicycle urbanism which provides social interaction, flexible services and retail through the creation of fluid clusters of activity and function in the urban landscape. Such an interpretation of Chinese pedal-based urban culture can be a starting point for developing new applications and strategies for pedal-powered vehicles in the cityscape.



Nowadays as preferences for the choice of personal mobility are shifting on a global scale, pedal-powered vehicles are increasingly appreciated as mode of individual transport and individual expression which in turn is leading to a rise in interest for a pedal-based culture in cities¹⁰. Such a shift in mindset and societal values will allow for the development of a bicycle urbanism to restructure the contemporary city.

Pedal-based livelihoods described above can inspire innovative urban strategies for bicycle urbanism in cities around the globe. This bicycle cultural exchange and learning will be reciprocal and extract cultural phenomena of one place to develop innovative strategies for another urban context. The main content of a bicycle cultural exchange will be ideas, or memes, as globally understandable concepts for pedal-based applications and innovations. For example, adaptations such as a tricycle as bakery or food stand, or specific socio-economic uses of pedal-based vehicles can be such memes which are able to be shared on a global scale and adapted locally.

An example for such a prolific meme is a pedal-powered vehicle used as a mobile DJ-ing device to create spontaneous urban musical events. Such pedal-based sound systems have been developed in cities across the globe, always for the same reasons; to exploit the advantage of a mobile, autonomous infrastructure for (subcultural) events in public space. Some examples for pedal-based sound systems can be found in Vancouver (figure 10), Berlin¹¹ or Vienna¹². Such a global proliferation of bicycle cultural memes can be imagined for a wide spectrum across the above described pedal-based livelihoods.

Strategies for and promises of bicycle urbanism

As concluding remarks we will use the above described pedal-based services and pop-up retail

to develop innovative strategies as prolific memes for bicycle urbanism strategies which have the potential to change life in urban space. We thereby want to inspire urban designers, planners and policy makers to re-think urban development along a bicycle urbanism approach. In terms of such innovative bicycle urbanism strategies we can imagine to:

Introduce pedal-powered grants. Institutions and city governments can create innovations in bicycle culture by providing a competitive financial incentive for people to develop innovative concepts for pedal-based applications. These grants can also be geared towards new types of pedal-based economies and services (some of which could be non-profit).

Create new urban spaces for pedal-powered events. Specific urban spaces can facilitate the occurrence of pedal-powered service, retail and cultural spectacles. Such spaces may be created by soft measures such as legal frameworks or by hard measures such as provision of infrastructure like power outlets, shading, rain protection, public seating, toilets or waste water facilities.

Allow a new pedal-based economy to evolve. The provision of licenses for pedal-based services and retail would allow a pedal based economy to develop on legal grounds. It is also possible to streamline such licenses along the public good created by such new economies. For enriching the urban landscape it would be possible to curate such licenses based on creativity of applications. The licenses should allow the introduction of pedal-based economies which can sustain themselves economically.

Develop a pedal-based creative economy. New types of creative industrial practice could evolve as being based in public urban space interacting in a mobile way with the population. Possibilities here are limitless but examples would

be a graphic designer selling business cards produced on the spot or an accountant offering services in public space.

Anticipate pedal-based public services. New types of public



Figure 9: Tricycle collective during a happening in public space in Beijing, China. Photo: Crystal Ruth Bell/Chrysalbelldesigns.com



Figure 10: 'The DJ Trike' is a project by the Canadian designer and DJ Jonathan Ingharas who conceives the adapted Chinese tricycle as a 'vehicle and platform for urban communication and interaction'. Photo: Jonathan Ingharas/www.thedjtrike.com

service could be introduced such as mobile libraries as temporary elements in public space or even administrative services which are mobile and thus easier to reach for citizens.

Create infrastructure for tricycles. A shift to a higher use of tricy-

cles will demand infrastructural adaptations such as larger and safe tricycle or cargo bike parking, wider bike lanes or a change in laws limiting the use of streets by cyclists.

Develop pedal-based economy alongside existing infrastructure. Think about and re-interpret how the existing urban infrastructure such as subway or public squares can interact with a new culture of bicycle based economies.

Employ advanced pedal-powered vehicles to lower the threshold for mobility. The development of advanced pedal-based vehicles for the less agile can significantly lower the threshold for being able to move around the cityscape and raise the health specific segments of society.

Celebrate bicycle urbanism. Create and host festivals in public space which showcase and promote bicycle culture and pedal-based economies and public service.

The above-mentioned strategies

could help to realize the promises of bicycle urbanism such as creation of sustainable neighborhoods with the help of pedal-based economies for local value creation. This new urban landscape will be significantly altered by fluidity and spontaneous clustering of pedal based services and retail which can potentially re-define a significant part of urban functions as existing today. Pedal-powered vehicles can be utilized for an individualized creative approach to create new meaning in the urban landscape. Such vehicles are therefore 'urban tools' which allow for creativity and diversity to actively change the urban landscape towards being more alive and livable.

Bicycle urbanism promises to be a model for urban development which provides more equality in the urban landscape and a better livability by localized services and the creation of spontaneous urban experiences. The culture arising from a bicycle urbanism approach

will be very rich and complex and allow the re-imagination of contemporary urban landscapes. If a city like Vienna is visionary enough to encourage this development and facilitate its innovation, then a modern and lively pedal-based culture will become part of the urban landscape allowing a global positioning as source for bicycle cultural exchange and inspiration.

The bicycle is only as old as the car and still bears a high potential for innovation. We will continue to develop the ideas and memes of bicycle urbanity and bicycle urbanism as we strongly believe that pedal-powered vehicles will be very efficiently evolving alongside rapidly changing urban conditions in the upcoming decades. ☺

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