

Renewed focus on cycling: Cycling promotion policies in Luxembourg

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Abstract

In European countries, interests in the bicycle resurged since 1970s for as a clean, light, sustainable and humane means of personal transport. In this paper, we overviewed the measures taken by Luxembourg, one of the founding nations of the EU, in terms of cycling promotion. The country has been heavily dependent on personal vehicle for transportation, causing various economic and ecological problems. To address the issues, the government has been implementing policies for modal shift from private vehicles to public transport and soft mobility such as walking and cycling. The policy packages to promote cycling encompass multiple pillars, such as cycle sharing system, cycle path construction and purchase subsidies. One notable program is Vélsummer, which aims to support domestic hospitality sectors through cycle tourism.

Keywords

modal shift, soft mobility, cycle sharing, cycle tourism, Luxembourg

1. Introduction

Luxembourg (officially Grand Duchy of Luxembourg) is the wealthiest among the OECD countries with GDP per capita of US\$ 120,980 in 2019 [OECD, n.d. a]. The wealth has aroused several economic and social problems. Among them, traffic congestion and accompanying air pollution are two of the largest issues.

The traffic congestion is one of the main reasons for the high CO₂ emissions per capita (14.8 tonnes in 2017) [OECD, n.d. b].

Another issue facing the country is the size of the frontier workers [Eurofound, 2018], who live in the surrounding three countries (Germany, France and Belgium) and commute to workplaces in Luxembourg every day. The number of the frontier workers is more than 200,000 [Toussaint, 2019]. Their main mode of commuting is private car, exacerbating traffic problems in the center.

In 2018, Luxembourg had the highest number of passenger cars per inhabitant in the EU, with 676 cars per 1,000 inhabitants [Eurostat, 2020b]. Approximately 60 % of these cars run on diesel fuel [Eurostat, 2020a].

A diesel engine uses, in principle, less fuel and produces less carbon dioxide than a petrol engine with the same power output. However, the engines produce higher levels of particulates which can penetrate deep into the lungs, causing irritation and potentially triggering asthma attacks [Leggett, 2018].

To address these issues, the successive governments of Luxembourg have been trying to promote a modal shift and encouraging people to use private cars less and public transport and bike more. The latest mobility strategy, introduced in 2012, is currently in effect to solve the issues associated with heavy dependence on private cars.

In the strategy, bike has small but important role in mobility transformation. In the target year of 2025, shares of bike from home to workplace are targeted to reach 4 % (up from 2 % in 2017). Those from home to school, the target is 10 %, com-

pared with 2 % in 2017.

This paper overviews a situation and specific policies in Luxembourg regarding bicycle usage and its promotion measures by the government, with comparisons to similar programs in Japan when applicable.

2. Cycle promotion policies

2.1 Cycle sharing system

The city of Luxembourg introduced a cycle sharing system called vel'OH! in March 2008. Under the management by an advertising agency JCDecaux Luxembourg, a subsidiary of French company JCDecaux, the system started with just 250 bikes, all non-electrically assisted, which were available from 25 docking stations [Luxembourg Times, 2013]. In 2018, another 10-year contract amounting to 14.6 million euro was won by the same company. Under the new contract, the number of the bikes has increased to 800 and that of the docking station increased to 93. Additionally, the bikes have been updated to be assisted by electricity which can cover a distance of 30 km to 40 km [JCDecaux, n.d.; Ville de Luxembourg, 2018; Rupert, 2018; Le gouvernement luxembourgeois, 2019b].

Currently, the system includes five plans, as shown in Table 1. The number of annual subscriptions has been increasing as shown in Figure 1. Subscription numbers saw two significant increases, once after the electric bikes were introduced, and once after the start of the pandemic. By the end of August 2021, close to 19,000 people had a Vel'Oh subscription [Fick, 2021].

In 2014, 67 % of the subscribers were young generations (aged between 26 and 45) and nearly 40 % were non-resident of Luxembourg. The ratio of male/female were two-to-one. In terms of seasonal breakdowns, from March until October, an average of 600 bikes were rented per day. And even during the winter months of November to February, around 260 people per day used the sharing system [Luxembourg Times, 2014].

Using this cycle sharing system is simple and straight; a user goes to one of the stations to rent and return a bike. The smartphone application developed for the sharing system allows us-

Table 1: Cycle sharing system plan in the city of Luxembourg

Plan	Details	Rate (euro)
One-day ticket	Valid for 24 hours. The first 30 minutes of every trip are free. Each additional hour started costs €1, up to a maximum of €5 per 24 hours. The security deposit (€150) is debited if the bike is not returned within 24 hours.	€2
Three-days ticket	Valid for 72 hours. The first 30 minutes of every trip are free. Each additional hour started costs €1, up to a maximum of €5 per 24 hours. The security deposit is debited if the bike is not returned within 24 hours.	€5
Annual subscription	Valid for one year. The first 30 minutes of every trip are free. Each additional hour started costs €1, up to a maximum of €5 per 24 hours. The security deposit is debited if the bike is not returned within 24 hours.	€18/year
Shared business plan	The company pays the annual subscription fee. The employee pays the usage fees* and security deposit.	€18/year
Shared business plan for European institutions	Same as shared business plan, except this plan is offered solely to the European Institutions.	€18/year

Source: vel'OH (n.d.)

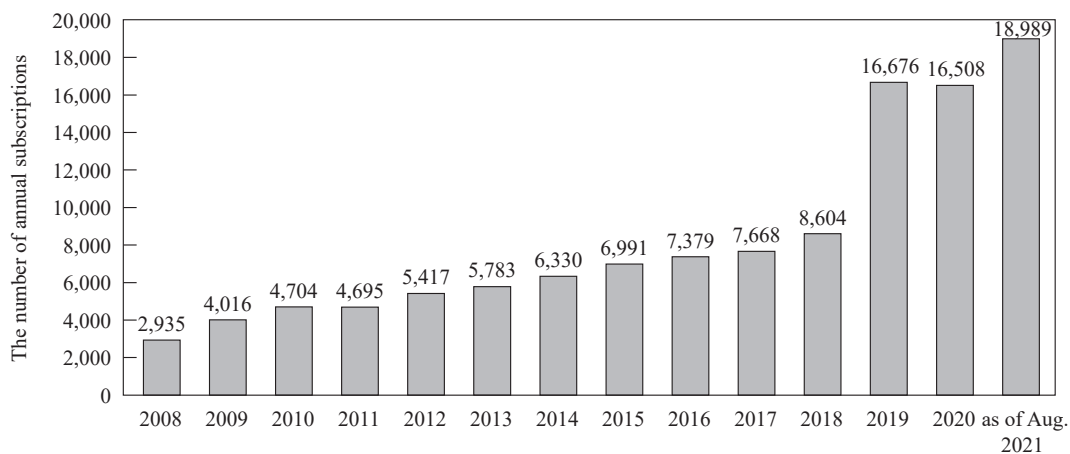


Figure 1: The number of annual subscriptions of vel'OH

Source: Fick [2021].

ers to check the reviews of previous users so that they can be sure to rent ones with no mechanical troubles.

In Kanazawa, a similar cycle sharing system called Machi-nori (Town bicycling) was introduced in 2010. Currently the system has 68 cycle ports and all the bicycles are electrically assisted. The operator of the service is a private company headquartered in Kanazawa; the system including smartphone applications is managed by Docomo Bikeshare, Inc, which provides bike sharing service platform to 37 cities across Japan [Docomo Bikeshare, n.d.]. Table 2 shows the list of plans for Machi-nori.

App features for Machi-nori are similar to those of vel'OH.

However, Machi-nori app does not offer user review sharing function implemented in vel'OH app. By introducing the function, maintenance procedure could be streamlined. In fact, on the application download page, a user wrote some troubling experiences he/she had faced when renting and returning a Machi-nori bicycle in Kanazawa.

Additionally, by incorporating the function into the app, user experiences would be enhanced and this could lead to better impression on the visit to Kanazawa.

2.2 Cycle paths and lanes

Since July 1999, when the Parliament of Luxembourg passed a

Table 2: Cycle sharing plans in Kanazawa (fee in yen)

Plan	Basic fee	First 30 mins	+ 30 mins	Maximum	One day pass
Single use	0	165	110	2,200/day	n.a.
Monthly use	1,650/month	0	110	2,200/day	n.a.
One day pass A	n.a.	n.a.	n.a.	n.a.	1,650/day
One day pass B	n.a.	n.a.	n.a.	n.a.	1,430/day

Notes: One day pass A: purchased over the counter. One day pass B: purchased in a convenience store or over the internet.

law for the creation of the national network of cycle path [Chambre des députés, 1999], the government has been investing into the cycling infrastructure. Currently a network of 600 km of cycling paths has been established, with the aim of reaching approximately 900 km by 2028. The network is made up of 23 tracks that crisscross the different regions across the country. Some sections are open exclusively to bikes, and link with the EuroVelo network of European cycling routes (Figure 2 and Table 3).

Even with these efforts, there are some critics for the slow pace of the development or relative insufficiency of the investment compared to leading EU countries such as the Netherlands or Denmark [Küster, 2015; Luxembourg Times, 2021].

2.3 Purchase subsidies

There are almost 300 tax-incentive and purchase-premium schemes for cycling across Europe offered by national, regional and local authorities to make it attractive to cycle more and drive less. While many incentives in Europe were already introduced in the last decade, the number of programs has increased significantly since 2019 [European Cyclists' Federation, n.d.].

In Luxembourg, as part of a sustainable economic recovery and with a view to achieving the objectives set in the Integrated National Energy and Climate Plan of 2019, the government has decided to increase and strengthen the aid scheme for vehicles in zero or low emissions. Since June of 2020, a purchase subsidy program has been expanded to include a new time purchase of a bicycle or electrically assisted bicycle. The purpose of the expansion is to encourage citizens in the country to opt for electromobility and active mobility, thereby ensuring sustainable clean mobility [Le gouvernement luxembourgeois, 2019a; myenergy, n.d.].

Purchase between May 2020 and March 2022 is eligible for subsidy under this program titled Clever Fueren (Clever Rider). The amount of the subsidy covers 50 % of the cost of the bicycle, excluding VAT, but cannot exceed 600 euros [Government of Luxembourg, n.d.; Le gouvernement luxembourgeois, n.d.].

Additionally, 64 municipalities out of 102 in the country offer similar program which can be used in combination with national program [Automobile Club du Luxembourg, 2021].

In Japan, there are several municipalities offering purchase subsidy for electric bicycle. Most of these are aimed for supporting parents with two or more kids who requires electric power assistance to safely bring two children on one bicycle. Financial assistance to conventional bicycles is offered only in a limited number of municipalities. One of these municipalities is Moriya city in Shiga, which aims to promote city tourism through bicycle tour. The assistance rate is 20 % of the price, with maximum amount of assistance 7,500 yen for conventional bike and 15,000 for electric bike. Annual application cases are over 200 cases [Kyoto Shimbun, 2020; Moriyama City, 2021].

Two possible reasons can explain these differences in bike purchase assistance policy between Luxembourg and Japan. (1) In Japan, many residents are already using bicycles. Introducing the assistance program is not easy in terms of fairness because existing bike users may feel treated unfairly for not being able to receive subsidy to their purchase. (2) In Japan, bicycle is often regarded as nuisance because of its illegal parking near the stations or shopping malls. Especially for big cities where many residents use bicycle from home to the station, preparing sufficient parking space is difficult because of high cost associated with purchasing necessary property. Many municipalities may have stronger incentives to control rather than increase the number of bicycles.

2.4 Special event during summer time

In the summer of 2020, a cycle tourism promotion initiative called Vëlosummer (Cycle Summer) was started by the Ministry of Mobility and Public Works and the General Directorate for Tourism of the Ministry of the Economy. With collaboration with several municipalities across the country, a number of roads were closed to car during the month of August. 6 routes were designated for the initiative which were open to the rider

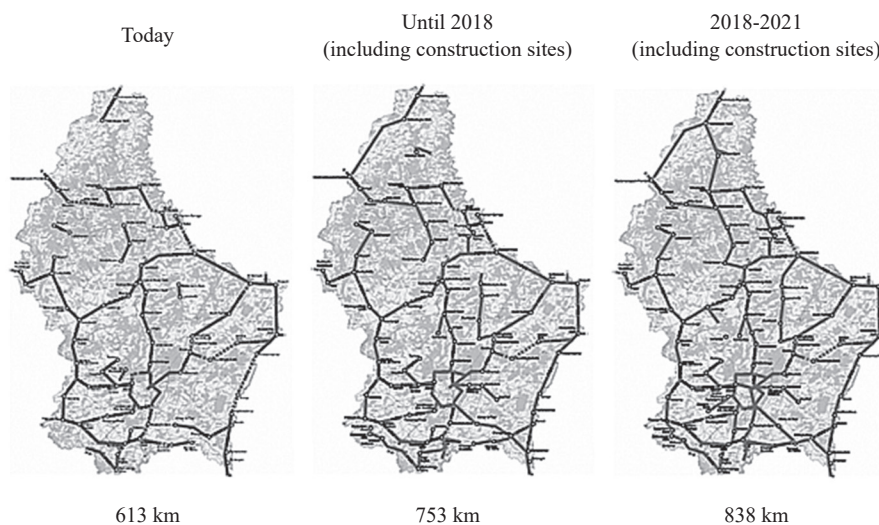


Figure 2: The cycle path network in Luxembourg
Source: ECF [2015].

Table 3: The list of cycle paths in Luxembourg

Cycle path name	Length*	From/to	Lowest	Highest
PC1 du Centre	43.0 km	Boucle autour du Grund	230 m	375 m
PC2 Echternach	43.5 km	Kirchberg/Echternach	168 m	380 m
PC3 des Trois Rivières	89.0 km	Schengen/Vianden	134 m	240 m
PC4 de la Syre	19.4 km	Ernster/Mertert	210 m	336 m
PC5 de l'Ernz Blanche	5 km (32.4 km)	Junglinster/Reisdorf	258 m	285 m
PC6 des Trois Cantons	54.0 km	Pétange/Remerschen	270 m	340 m
PC7 Jangli	12.5 km	Remich/Mondorf-les-Bains	142 m	250 m
PC8 de la Terre Rouge	20 km (42.5 km)	Belvaux/Tétange	292 m	416 m
PC9 Faubourg Minier	15.6 km	Sanem/Kockelescheure	290 m	362 m
PC10 François Faber	8.7 km	Leudelage/Fénange	270 m	326 m
PC11 Charly Gaul	14.6 km	Fetange/Ellange gare	220 m	336 m
PC12 de l'Attert	57.0 km	Pétange/Colmar-Berg	204 m	346 m
PC13 Nicolas Frantz	13.8 km	Kahler/Strassen	288 m	364 m
PC14 Eisch-Mamer	5 km (17.7 km)	Mamer/Mersch	220 m	376 m
PC15 de l'Alzette	31.0 km	Bereldange/Ettelbrück	196 m	258 m
PC16 de la Moyenne Sûre	32 km (71.2 km)	Reisdorf/Kautenbach	246 m	478 m
PC17 de l'Ouest	18 km (47.8 km)	Noerdange/Arsdorf	264 m	520 m
PC18 des Ardoisières	11.4 km	Koetschette/Martelange	404 m	514 m
PC19 du lac de Haute-Sûre	3.2 km	Bavigne/Liefrange	320 m	354 m
PC20 de la Wiltz	17.8 km	Kautenbach/Benonchamp	250 m	422 m
PC21 du Nord	9.3 km (47.0 km)	Kautenbach/Schmëtt	252 m	326 m
PC22 des Ardennes	13 km (26.0 km)	Bettel/Lellingen	234 m	524 m
PC23 Benni	6.5 km	Bleesbrück/Fouhren	188 m	302 m

Source: Travaux Publics [n.d.].

Note: * Value in parenthesis signifies planned length of a path.

either on weekends or throughout the whole month, depending on the route. These traffic-free routes allowed bikers to tour around safely and leisurely. In 2020, more than 40,000 cyclists participated in the event. During the event, the accommodation vouchers of 50 euros were distributed to support local businesses along the cycle paths under the national tourist campaign “Lëtzebuerg-Dat ass Vakanz” (Luxembourg: It is vacation). Nearly 60,000 vouchers were used from mid-July till the end of September [Le gouvernement luxembourgeois, 2020].

In 2021, the second initiative was implemented with 12 routes covering a total of 550km. 65 municipalities, the regional tourist offices and the National Roads Administration collaborated closely with the national government for the initiative, as shown in Figure 3 [Le gouvernement luxembourgeois 2021].

To support local businesses during Vëlosummer 2021, the five regional tourism associations jointly organized a prize draw where cyclists touring along Vëlosummer routes can collect stickers and win prizes. When stopping at one of the participating establishments to buy items, a drink or something to eat, or to pay for an admission, a cyclist receives a sticker. These stickers can be stuck on the collection card available in the participating businesses and five stickers collected allow one to enter the competition by sending in the card. In 2021,

159 establishments participated in this prize draw.

To make cycling tourism easier, another initiative called “Move, we carry” was implemented in 2020 and 2021, which was administered by the Directorate General for Tourism. This is a service for private individuals and travel professionals, providing free luggage transport for all hikers or cyclists who wish to discover Luxembourg in stages. Maximum luggage weight is 20kg and two pieces of luggage are accepted for one user [Move, We Carry, n.d.]. In 2020, approximately 2,400 pieces of luggage were delivered [Visit Luxembourg, n.d.].

The site for this service offers Dutch version in addition to those offered in three main languages of Luxembourg (French, German and English). Dutch is used in Northern Belgium and the Netherlands, where many avid bike users reside and spend their holidays or vacations on cycle tourism.

3. Implication for tourism

Cycle share system and purchase subsidy are not, for themselves, directly contribute to tourism. However, through these programs, the number of cyclists, temporary or permanent, will surely increase. This will incentivize more municipalities to invest in local cycle paths. Also, the construction of the sections not completed in the existing cycle path network will ac-

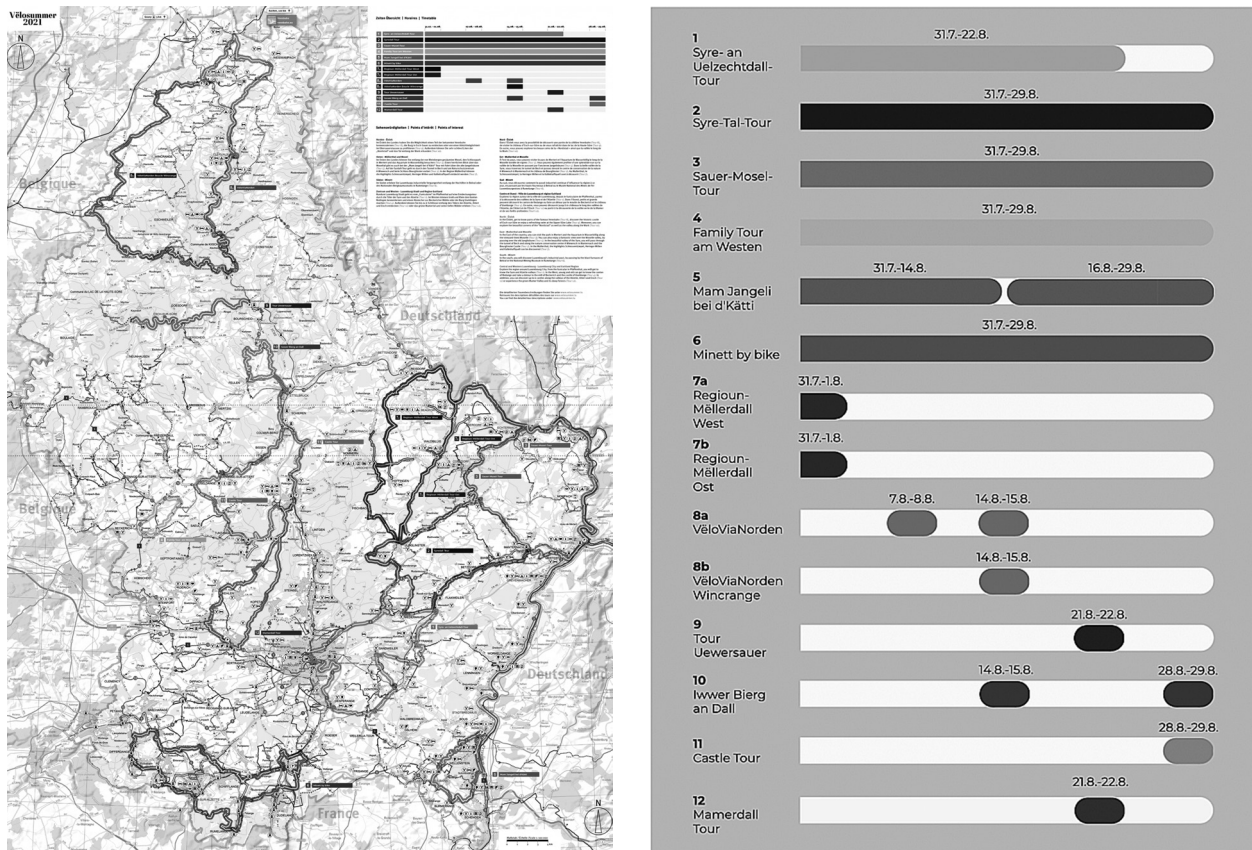


Figure 3: Map and route for Vélosommer 2021

Source: Visit Luxembourg [n.d.].

celerate due to the increase of the cyclists.

With the development of the network, cycle tourism will become safer, smoother, and more satisfying, which will promote local businesses located along the network.

Special event in the summer time is effective directly to promote tourism, but also indirectly by arousing the interest in cycle tourism and potential cyclists can become actual cyclists.

Although some cities in Japan has adopted similar system and policy, their approaches are partial and do not have comprehensive perspective. The policy package in Luxembourg could be a valuable guiding light to update and improve the policies for cycle usage and tourism promotion in Japan.

4. Conclusion

Luxembourg is not the front runner in promoting cycle mobility or cycle tourism among EU countries. However, over the past two decades, the government has been implementing various policies to promote the usage of bicycles. These include cycle sharing system, cycle paths construction, purchase subsidy, and summer special event. In this paper, these policies were overviewed and some implications for the tourism promotion have been discussed.

Although the number of cyclists has not shown a significant increase for the time being, the aims of the policies to realize a better mobility structure are highly relevant to addressing global warming and climate change.

This research has been conducted based solely on written doc-

uments including official papers, research journals and web sites. Although these documents offer objective data and information, on-hand experiences and in-person interviews also play important roles for tourism research. Since 2020, because of COVID pandemic, research trip to foreign countries have become restrictively difficult. When situation ameliorates, a research trip to the site would show more detailed and operational insights.

In addition, the research focus on just one country. In Europe, many countries have been investing proactively to promote bicycle usage, not only for daily-use, but also for tourism. More comprehensive research would offer more wider perspective on cycle promotion and tourism in some of the leading countries. The findings through these more profound and comprehensive research could offer valuable suggestions for cycle promotion and tourism in Japan.

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