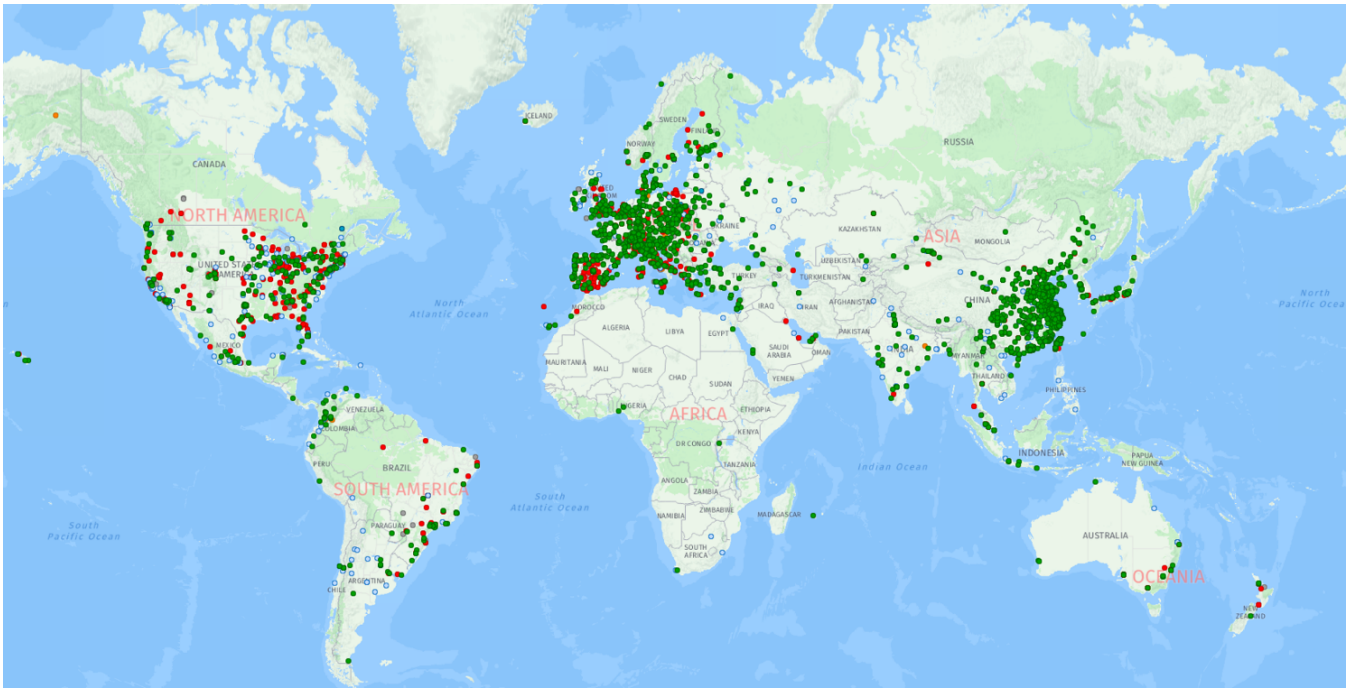

The Meddin Bike-sharing World Map

Mid-2021 Report

October 2021

This report is made possible by the financial support of PBSC Urban Solutions.

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Contents

1. Introduction

We're glad to present the first report of The Meddin Bike-sharing World Map (https://bikesharingworldmap.com/) -- a well used reference tool by researchers, planners, professionals, and the general public -- which has been online since 2007. In this publication, you'll read about The Meddin Map's history; on-going changes; perspectives for the future; and statistics, numbers, and stories of bike-sharing systems worldwide.

Bike-sharing has been a transformative tool for cities and populations, expanding access to services and opportunities, increasing mobility, and contributing to a more sustainable urban environment. At the writing of this report, many cities seem to be leaving the COVID-19 pandemic behind, reopening their activities and implementing changes learned from this severe global event. Bike-sharing schemes survived the pandemic and proved to be resilient and flexible enough to inspire more profound changes in how we move around and experience our cities. By August 2021, there were more than 10 million bikes shared in diverse kinds of schemes.

This report comes along with improvements to The Bike-sharing World Map itself. With the passing of Russell Meddin, an 11-year veteran of The Bike-sharing World Map and The Bike-sharing Blog, in April 2020, the map was relaunched by a team of bike-share enthusiasts from around the world to honor his memory and body of work he contributed to the field and renamed The Meddin Bike-sharing World Map. Russell was a passionate bike-sharing pioneer based in Philadelphia (USA). For many years, he worked with Paul DeMaio (the project's creator) to provide accurate information about systems worldwide. Russell's dedicated work created a unique database of initiatives that by itself tells the history of this transportation system in our societies.

The project includes an international team of curators, an improved interface, and a sponsorship from PBSC Urban Solutions that made this report possible.

This publication is inspired by The Bike-sharing Blog's "Year-End posts." From 2007 to 2016, the blog authors presented a wrap-up of the year, with graphs, statistics, and relevant stories of this exciting world. The year 2020 was marked by COVID-19 pandemics, so we also highlighted some initiatives that helped societies move around and overcome this difficult period. We hope you enjoy the reading!

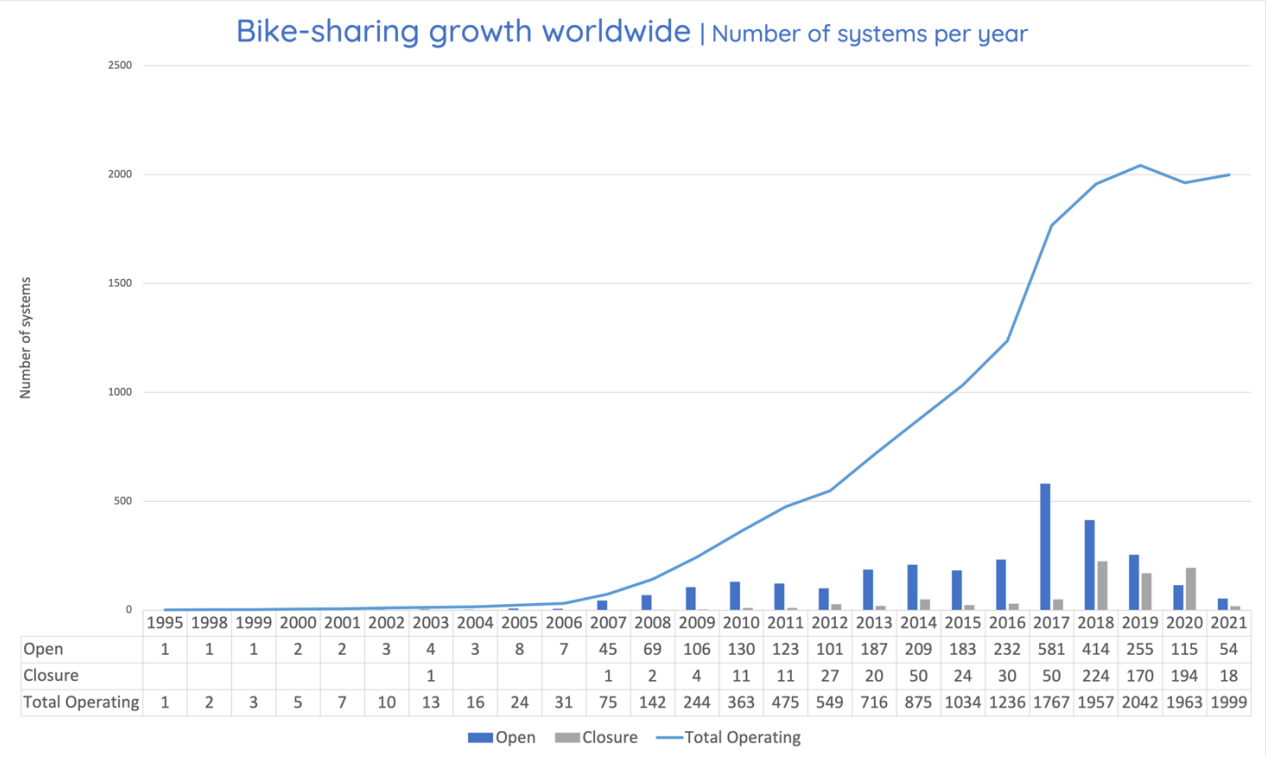
The Meddin Bike-sharing World Map team

2. The Bike-sharing World: mid-2021

As mentioned above, for ten consecutive years (2007-2016), The Bike-sharing Blog's authors published each years' wrap-up, presenting a summary of statistics and data, a global panorama, highlights, and systems innovations in different cities. For this publication, due to the COVID-19 pandemic, we decided to make a mid-year publication that comes along with this report. A focus on the pandemic period shows an interesting perspective of the resilience of bike-sharing and the potential of biking in general to build a more sustainable way to move around.

The data used in this report from The Meddin Bike-sharing World Map, accessed on August, 27th 2021 at http://bikesharingworldmap.com/ .

Systems Per Year (Total Operating, Openings and Closures)



	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Open	1	1	1	2	2	3	4	3	8	7	45	69	106	130	123	101	187	209	183	232	581	414	255	115	54
Closure							1				1	2	4	11	11	27	20	50	24	30	50	224	170	194	18
Total Operating	1	2	3	5	7	10	13	16	24	31	75	142	244	363	475	549	716	875	1034	1236	1767	1957	2042	1963	1999

Figure 1: Number of systems per year worldwide: openings, closures and total operating[1]

[1] *As noted in the Acknowledgements and Limitations section, there are still 33 systems without an opening date recorded and 106 non-operative systems without a closure date.*

The first record on The Meddin Bike-sharing Map is Bycyklen in Copenhagen, launched in 1995, considered the first large-scale second-generation system. However, bike-sharing became a trendy idea worldwide starting, mainly afterwith the launch of Vélib' in Paris, in 2007. Since then, the number of systems worldwide has grown every year until 2020 -- when the number of system closures exceeded the number of launches (*Figure 1*). The COVID-19 pandemic certainly led to many closures as commuting habits changed around the world and system cost recoveries likely lowered, decreasing revenue generation. The first half of 2021 shows a recovery, with three times more openings than closures. As we seem to be leaving the worst phase of the pandemic, bicycles appear as a strong, resilient, and powerful tool to transform our cities and move people around.

Top 50 Countries

There are many ways to count and measure bike-sharing systems: by the number of bicycles or stations available, the number of cities with systems, the number of trips per bike, the percentage of a city's population attended, and so on. *Figure 2* below shows a heatmap of the world, and *Figure 3* displays a ranking of countries by the number of active bike-sharing systems in mid-2021

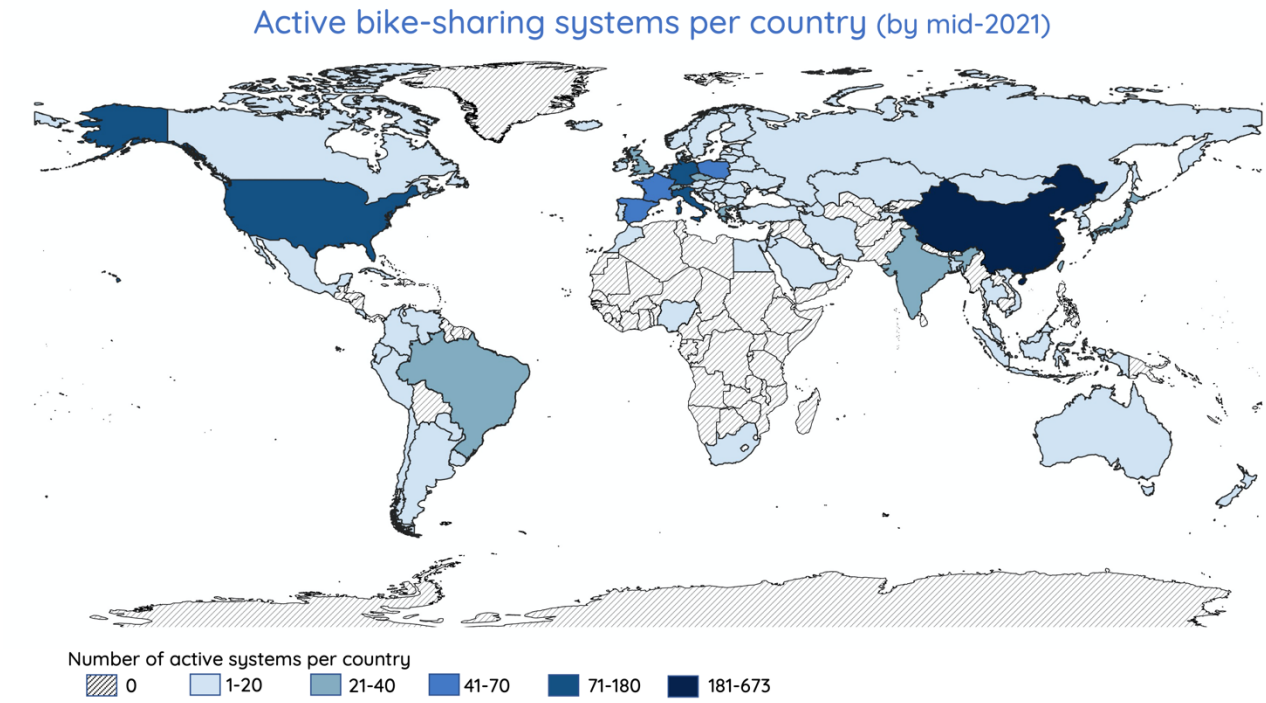


Figure 2: Active systems worldwide by mid-2021

We know that the number of open systems doesn't tell the whole story, as a small country can have a very efficient and widely used system, resulting in a more significant impact on urban mobility than a big country with more systems that are less well used. As disclaimed in the Acknowledgements and Limitations section, our database still needs improvements on the number of bikes and stations available in each system, making the comparison of these numbers impossible at the moment. Nevertheless, nations are still vital players in policy-making, providing funding, and directing investments, so ranking systems per country offer an interesting overview.

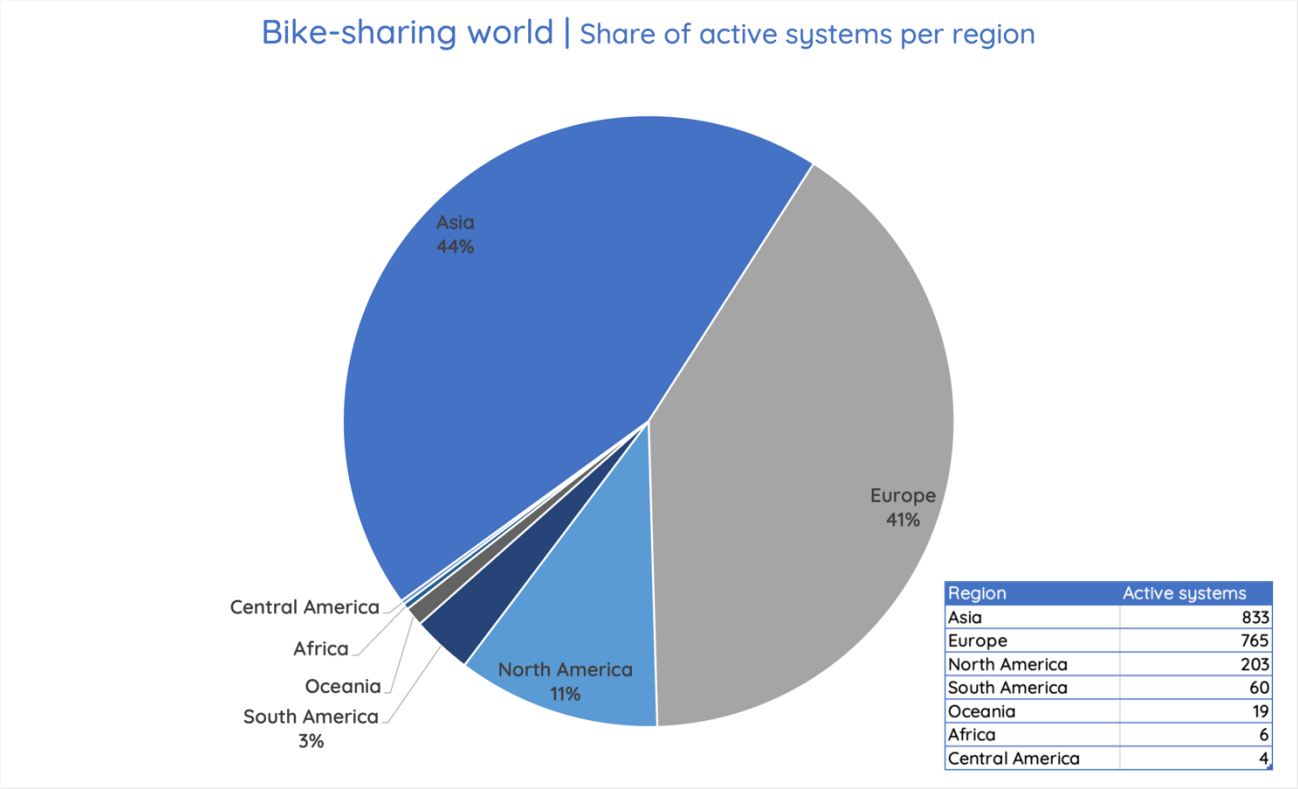
Bike-sharing country rank
(by # of active systems, mid-2021)

Rank	Country	Systems		Rank	Country	Systems
1	China	673		26	Mexico	13
2	United States	174		27	Australia	13
3	Germany	107		28	South Korea	13
4	Italy	104		29	Denmark	13
5	France	70		30	Norway	11
6	Spain	67		31	Slovenia	9
7	Poland	63		32	Ireland	9
8	United Kingdom	40		33	Argentina	8
9	India	33		34	Belarus	8
10	Japan	33		35	Slovakia	8
11	Switzerland	29		36	Hungary	7
12	Greece	27		37	Romania	6
13	Brazil	27		38	Belgium	6
14	Czech Republic	27		39	Ukraine	6
15	Taiwan	24		40	Liechtenstein	6
16	Austria	20		41	Israel	5
17	Netherlands	19		42	Indonesia	5
18	Finland	17		43	Kazakhstan	5
19	Sweden	17		44	Malaysia	4
20	Russia	16		45	Chile	4
21	Turkey	16		46	Bosnia and Herzegovina	3
22	Canada	16		47	New Zealand	3
23	Croatia	15		48	Estonia	3
24	Colombia	15		49	Cyprus	3
25	Portugal	14		50	United Arab Emirates	3

Figure 3: Rank of countries with more active systems by mid-2021

Continents and regions

Figure 4 shows the distribution of bike-sharing by continent/region. First, the percentage of systems in each continent/region and after the number of active systems (open or seasonally suspended). The following pages present a brief historical panorama of bike-sharing systems in each continent/region.

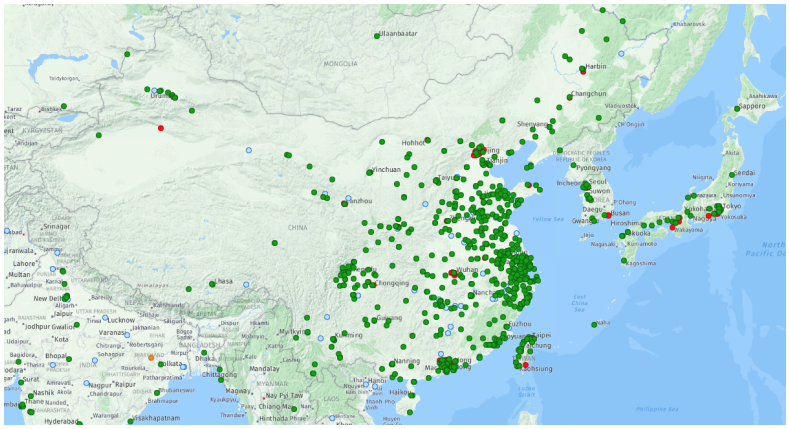


Region	Active systems
Asia	833
Europe	765
North America	203
South America	60
Oceania	19
Africa	6
Central America	4

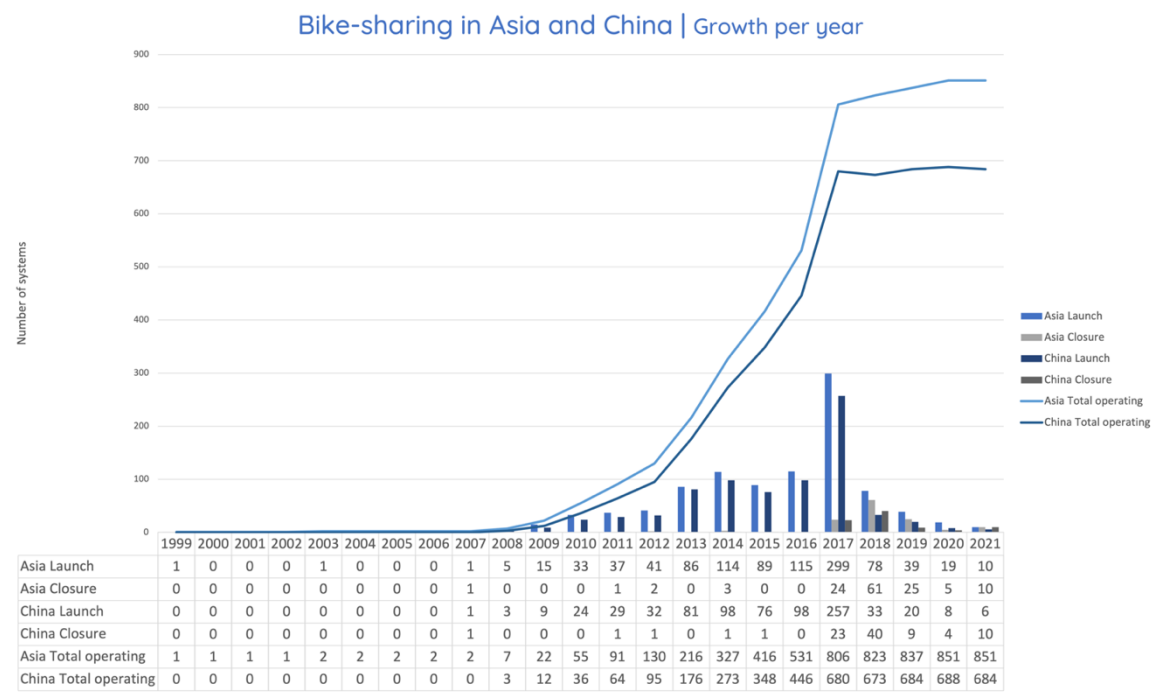
Figure 4: Share of active systems per continent/region by mid-2021

Continents and Regions - In Brief

Africa - Marrakesh, in Morroco, was the first African city to have a bike-sharing system. The municipality inaugurated Medina Bike in November 2016 for the 22nd United Nations Conference of Parties (COP 22), and it faded out during 2020 (having 7 bikes available in October 2020). Africa currently has six systems in operation. In 2019, Nigeria joined Egypt, South Africa, and Morocco in opening free-floating systems in two cities (Ede, and the biggest city, Lagos), operated by a local company (AWA Bikes).



Asia - Singapore was the first place in Asia to have bike-sharing and one of the first IT-based systems globally, the SmartBike (or Town Bike), launched in 1999. It wasn't for another decade until China joined the bike-sharing world, quickly surpassing other nations with the number of systems and their fleet sizes. The Meddin Bike-sharing World Map registered Zhengzhou as the first Chinese city to try a bike-sharing system in 2007, but it lasted just a few months. In 2008, the successful Hangzhou Public Bicycle Service was launched and is one of the oldest systems still in operation worldwide and one of the largest - with around 120,000 bikes. Year after year, China pushed up the number of systems in Asia (*Figure 5*) and the world. In Asia, China has 81% of the systems in operation (*Figure 6*), and worldwide it maintains 36% of all systems.



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Asia Launch	1	0	0	0	1	0	0	0	1	5	15	33	37	41	86	114	89	115	299	78	39	19	10
Asia Closure	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	3	0	0	24	61	25	5	10
China Launch	0	0	0	0	0	0	0	0	1	3	9	24	29	32	81	98	76	98	257	33	20	8	6
China Closure	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	0	23	40	9	4	10
Asia Total operating	1	1	1	1	2	2	2	2	2	7	22	55	91	130	216	327	416	531	806	823	837	851	851
China Total operating	0	0	0	0	0	0	0	0	0	3	12	36	64	95	176	273	348	446	680	673	684	688	684

Figure 5: Number of systems per year in China and Asia: openings, closures and total operating[2]

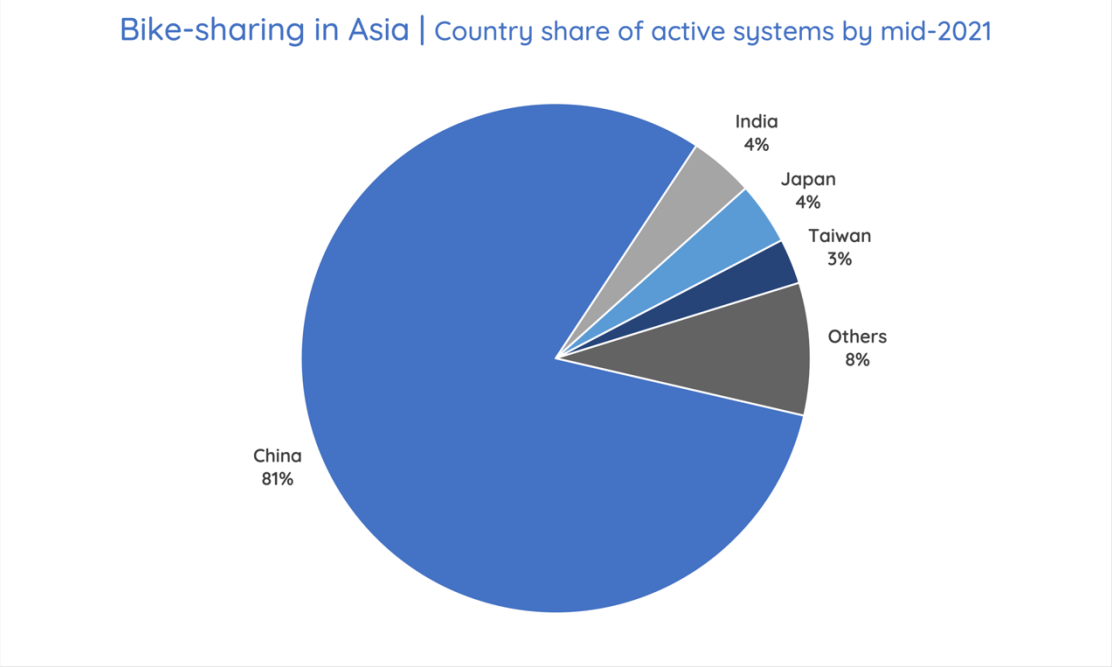


Figure 6: Country share of active bike-sharing systems in Asia by mid-2021

[2] *The 'total operating' displayed in this chart miscounts 25 launched systems without a start date and 43 closed systems without a closure date (see Acknowledgments and Limitations). The actual number of systems operating in Asia is 833.*

China's early systems of "Public Bicycles" are a result of a national low-carbon policy that enabled public-private partnerships or direct public funding in cities and provinces. In 2016, private companies started large-scale free-floating bike-sharing in dozens of Chinese cities. The first wave of dockless systems peaked in 2017 (*Figure 7*) and, after urban management problems, many systems began to fade away. Most free-floating providers were bankrupted or absorbed by larger companies.

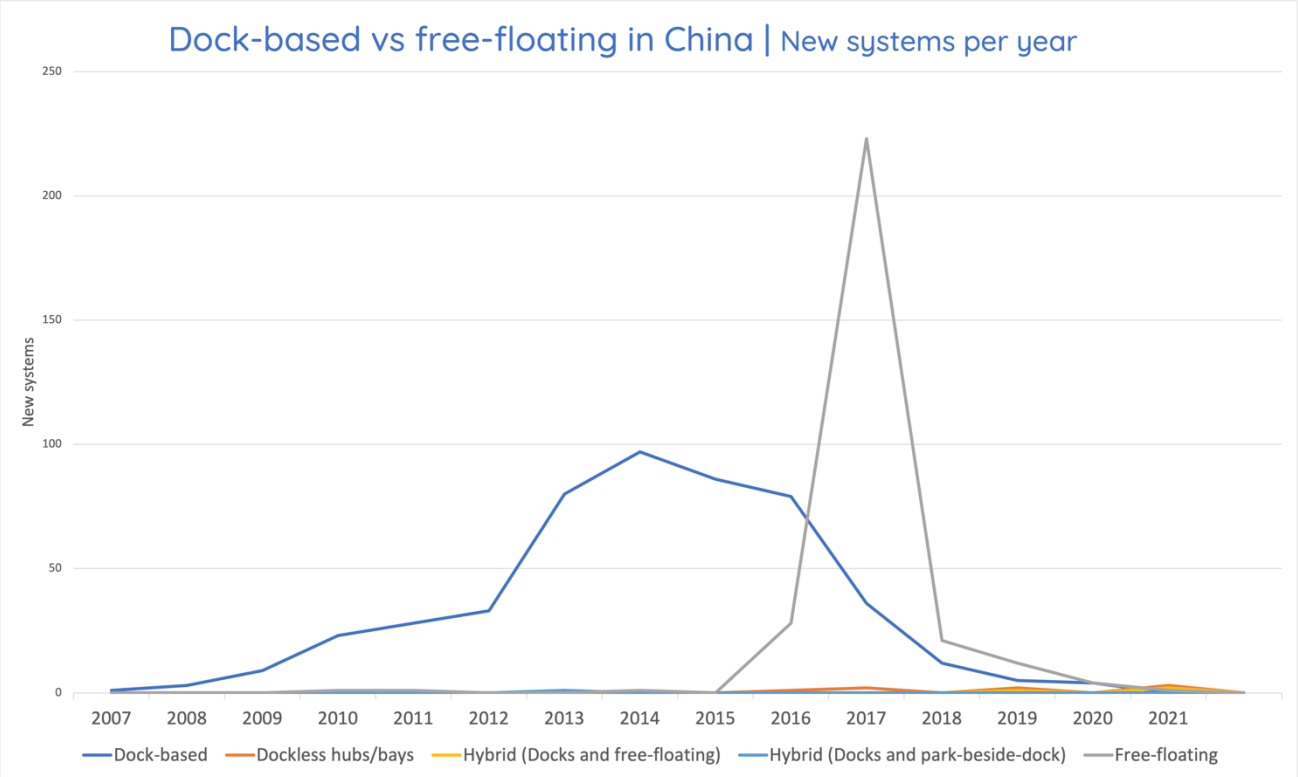
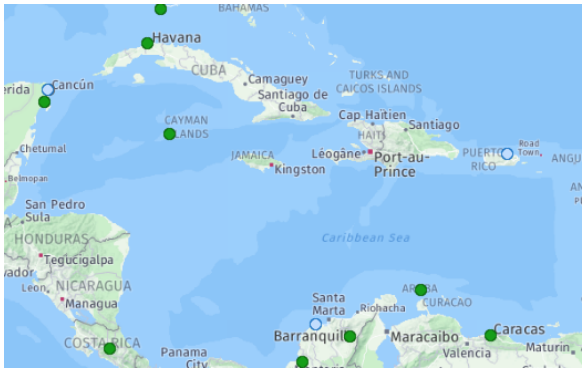
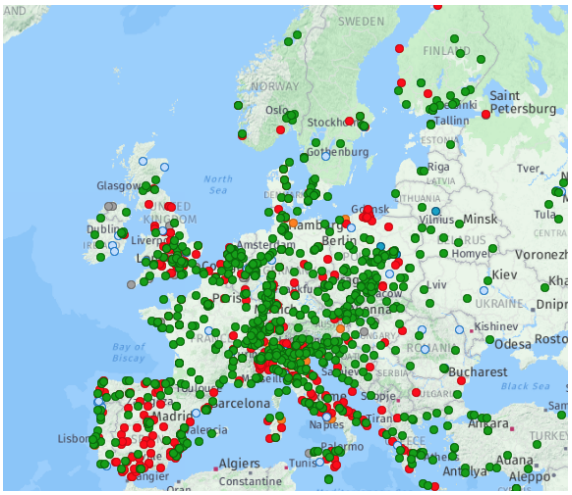


Figure 7: Number of new systems in China per year per type

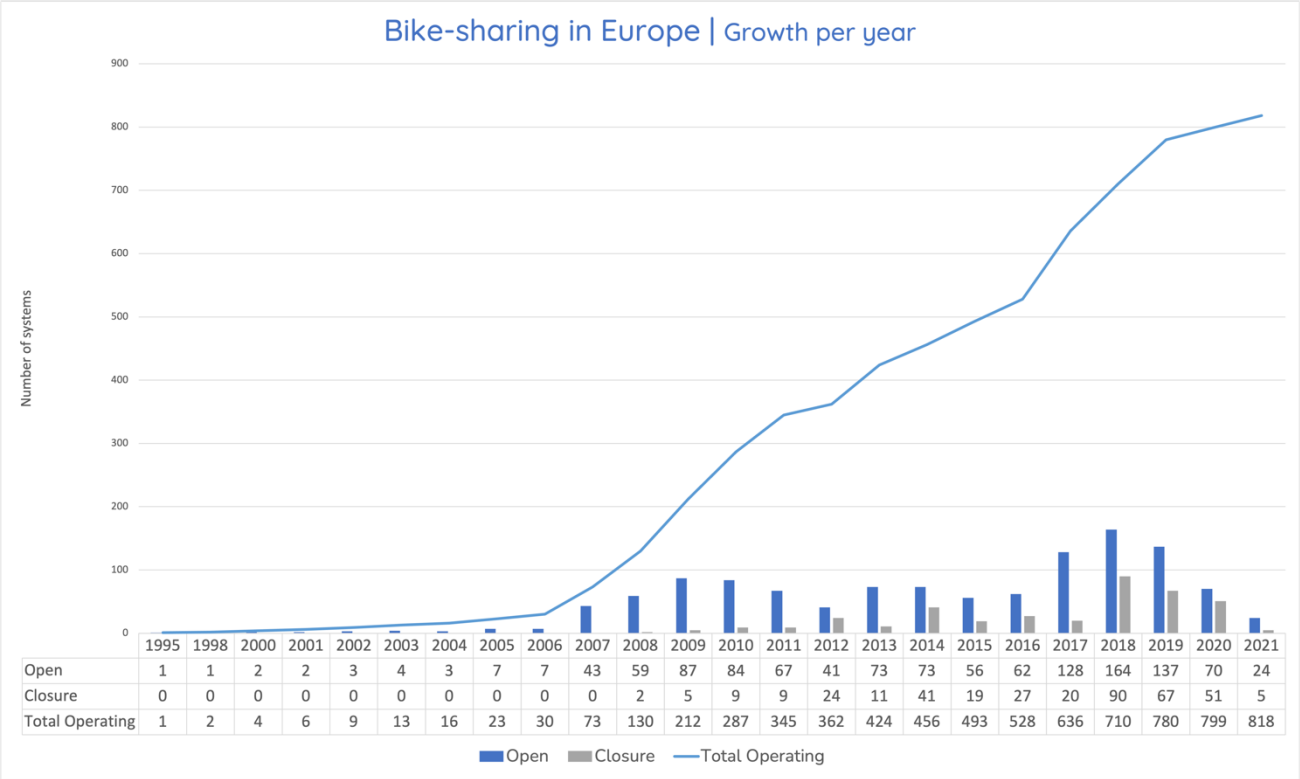
In 2021, local governments are enhancing regulations on the free-floating market. Cities are setting a maximum number of bikes that can be available in their territories and dividing this total among multiple providers. The share is evaluated and redistributed from time to time according to performance and management criteria of each company. The improvement of geofencing technology allowed sharpener management of cycles in parking hubs, promising to avoid previous problems. The second wave of free-floating bikes came along with the suspension of subsidies and even closures. Beijing is a case of a long-time station-based public bike system that is closing in 2021, thereby opening space for private free-floating systems.



Central America - Central America is the newest kid on the block regarding bike-sharing. In the Caribbean Sea, Aruba started the Green Bike project in 2017 and now counts 100 bikes and 8 stations along the west coast. In Havana (Cuba), the Ha'Bici project began in 2018, and now there are almost 300 bikes. In Costa Rica, the metropolitan area of San Jose have a system with 1,000 pedelecs operating since 2019. To the northeast, the small Cayman Islands counts 24 bikes and 8 stations.



Europe - The vision that bikes shared among citizens can be a powerful tool to transform car-centric cities and promote healthier environments was put in practice first in Amsterdam (The Netherlands) in the early 1960s, with the White Bikes Plan (*Witte Fietsenplan)*. Shared bike experiments happened in France, Denmark, Germany, Finland, Norway, and the United Kingdom in the following decades. In 2005, Lyon (France) launched the first large-scale system. Not to be outdone by its little sister, Paris followed two years later by a global turning point with Vélib'. The growth has been steady since then.

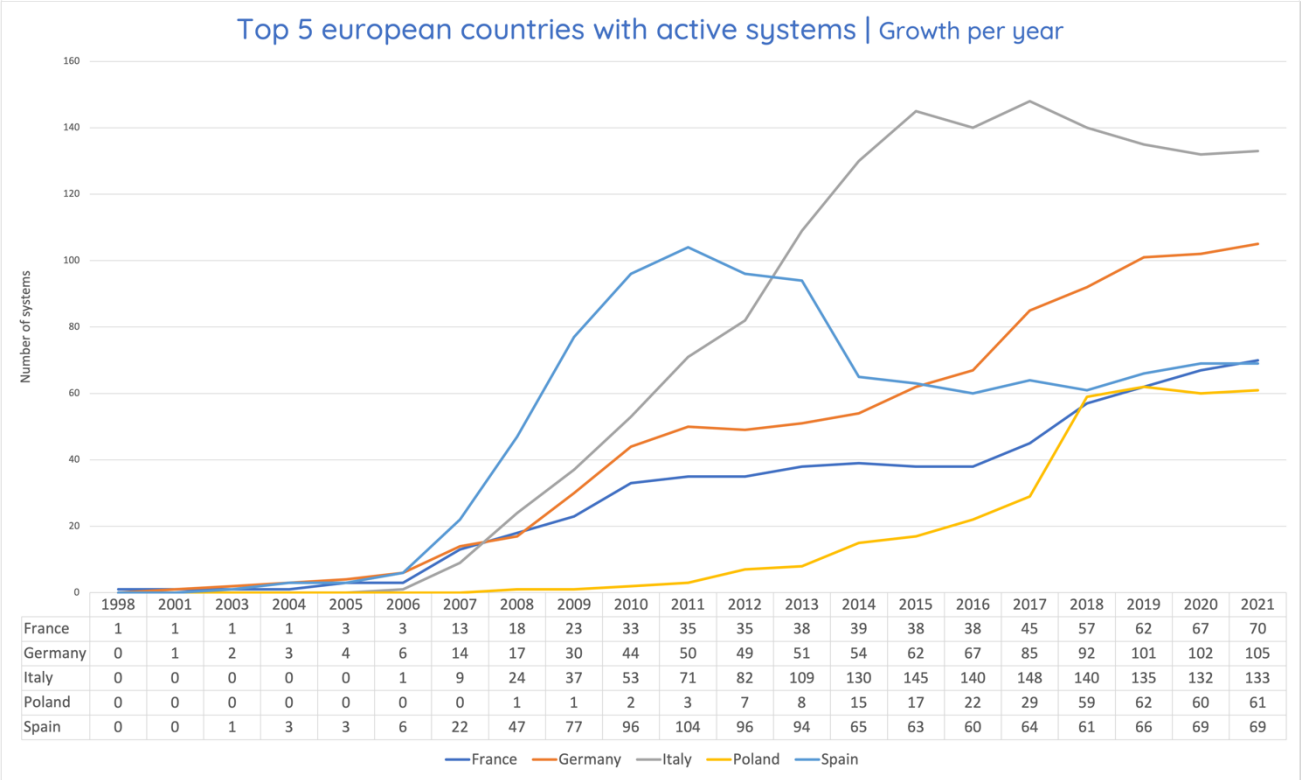


	1995	1998	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Open	1	1	2	2	3	4	3	7	7	43	59	87	84	67	41	73	73	56	62	128	164	137	70	24
Closure	0	0	0	0	0	0	0	0	0	0	2	5	9	9	24	11	41	19	27	20	90	67	51	5
Total Operating	1	2	4	6	9	13	16	23	30	73	130	212	287	345	362	424	456	493	528	636	710	780	799	818

Figure 8: Number of systems in Europe: openings, closures and total operating[3]

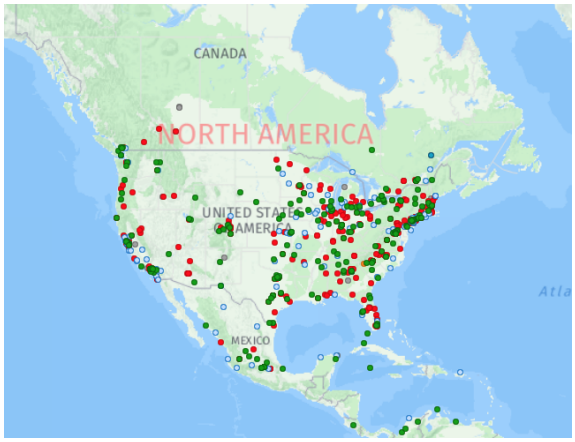
[3] *The 'total operating' displayed in this chart miscounts seven launched systems without a start date and 60 closed systems without a closure date (see Acknowledgments and Limitations). The actual number of systems operating in Europe is 765.*

There are 681 cities with at least one system in the region. The top 5 countries are Italy, Germany, France, Spain, and Poland, with 36% of all systems currently opened in Europe.

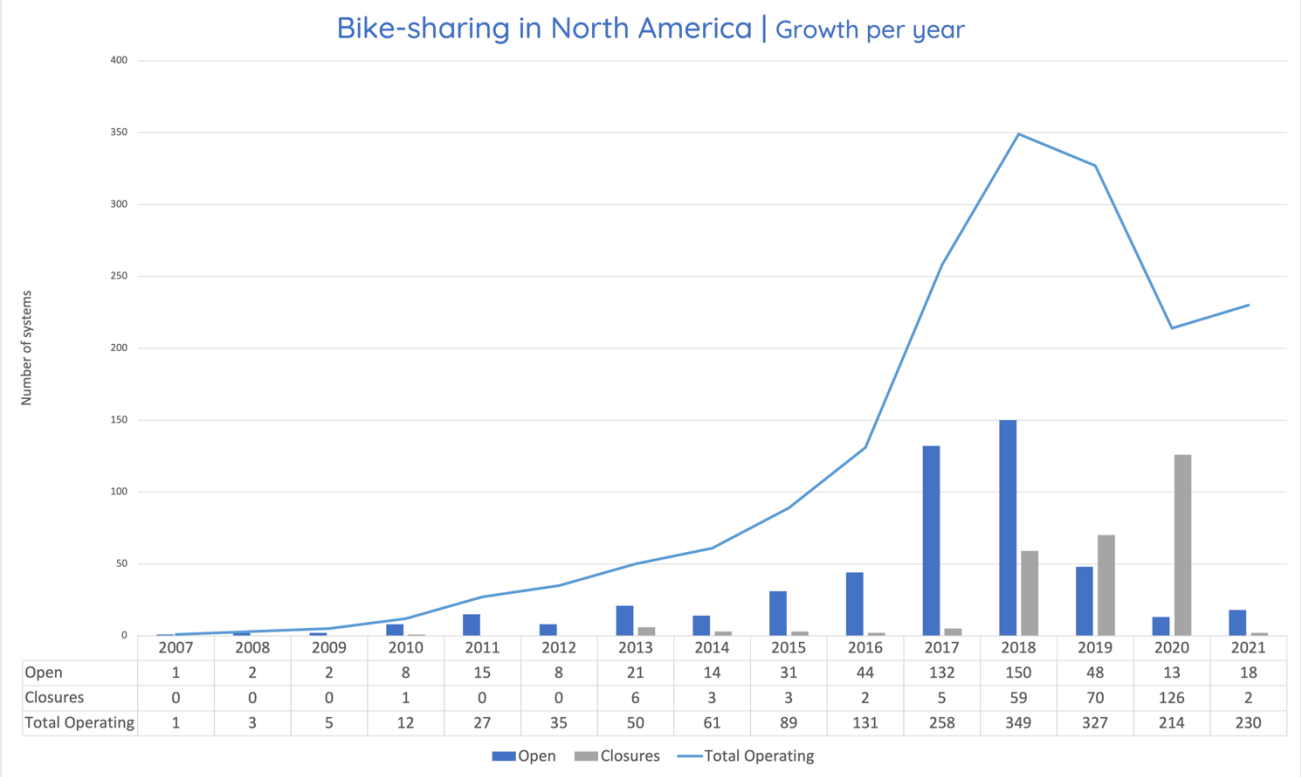


	1998	2001	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
France	1	1	1	1	3	3	13	18	23	33	35	35	38	39	38	38	45	57	62	67	70
Germany	0	1	2	3	4	6	14	17	30	44	50	49	51	54	62	67	85	92	101	102	105
Italy	0	0	0	0	0	1	9	24	37	53	71	82	109	130	145	140	148	140	135	132	133
Poland	0	0	0	0	0	0	0	1	1	2	3	7	8	15	17	22	29	59	62	60	61
Spain	0	0	1	3	3	6	22	47	77	96	104	96	94	65	63	60	64	61	66	69	69

Figure 9: Number of systems in Europe's Top 5 countries: openings, closures and total operating



North America - The city of Tulsa (United States) was the first in North America to have a bike-sharing system in 2007, followed by Washington, DC (USA), Guadalajara (Mexico), and Montréal (Canada) in 2008. The United States ranks first in the number of open systems in 2021, with 174 schemes in 161 cities, followed by Canada with 16 systems in 14 cities, and Mexico with 13 systems in 11 cities.



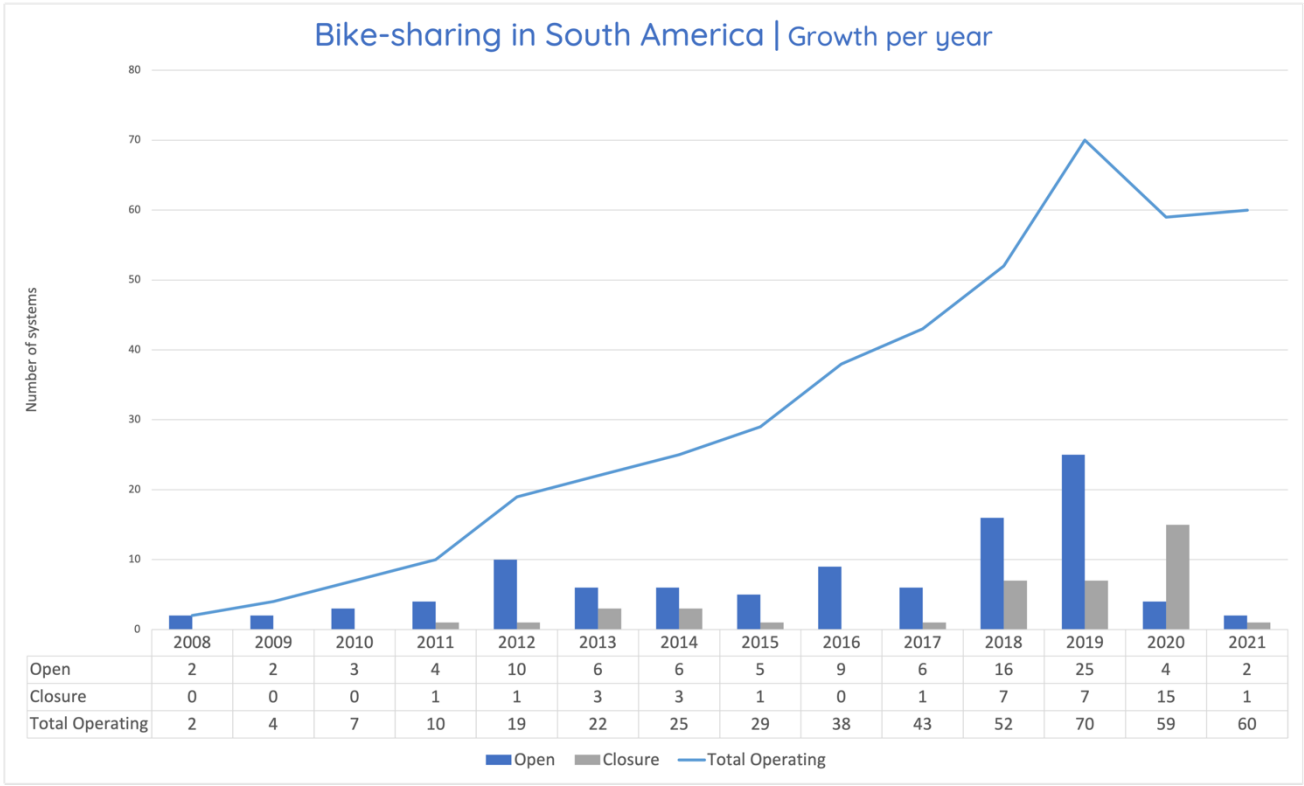
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Open	1	2	2	8	15	8	21	14	31	44	132	150	48	13	18
Closures	0	0	0	1	0	0	6	3	3	2	5	59	70	126	2
Total Operating	1	3	5	12	27	35	50	61	89	131	258	349	327	214	230

Figure 10: Number of systems in North America: openings, closures and total operating[4]

The growth per year was steady until 2016. As in Asia during the 2017-2018 period, the arrival of free-floating systems quickly pushed the number of launches up, making bike-sharing accessible to more cities and people.

[4] *The 'total operating' displayed in this chart miscounts one launched system without a start date and 28 closed systems without a closure date (see Acknowledgments and Limitations). The actual number of systems operating in North America is 203.*

South America - South America joined the bike-sharing world with systems in Rio de Janeiro (Brazil) and Santiago (Chile) in 2008. Since then, growth was steady until 2020, when the free-floating operator Yellow shut down its operations in Brazil, closing ten systems at once and marking the first year of a negative balance for the continent. There are 60 systems currently in operation (and three temporarily suspended). Brazil, the biggest country in the continent, leads the rank with 27 systems, followed by Colombia (18), Argentina (8), and Chile (4). Station-based systems are the most common type in South America, representing more than 75%.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Open	2	2	3	4	10	6	6	5	9	6	16	25	4	2
Closure	0	0	0	1	1	3	3	1	0	1	7	7	15	1
Total Operating	2	4	7	10	19	22	25	29	38	43	52	70	59	60

Figure 11: Number of systems in South America: openings, closures and total operating

Oceania - The first bike-sharing system in Oceania was Adelaide Free Bikes, in Australia, which opened in 2005 and was in operation until 2019. The city then decided to open the roads to free-floating systems, and Free Bikes remains a limited service in the city of Charles Strut. There are 19 systems currently operating in Australia and New Zealand.

In **Oceania** bike-sharing schemes have currently been halted. COVID-19 and a series of lockdowns have made it hard for operators to continue. Particularly in New Zealand, ONZO, who was the main provider of shared bikes for several years, have ceased operations. While in Australia, Jump -- the provider for electric shared bikes -- are still in operation but sparse to find on streets.

Before COVID-19, there had been increased interest from both Australia and New Zealand to emphasize supporting and building new cycleways, and dockless bikes were seen as a good way to encourage people to start cycling more. However, cities here grappled with how and when to enforce permits and regulations, while also combatting bike theft and vandalism. Oversaturation of the market, especially in big cities like Sydney (and many other cities around the world with dockless bikes) where multiple dockless bike-share companies operate, resulted in cluttered streets where in some cases cultivated a climate of frustration around bike-sharing and bicycles in general.

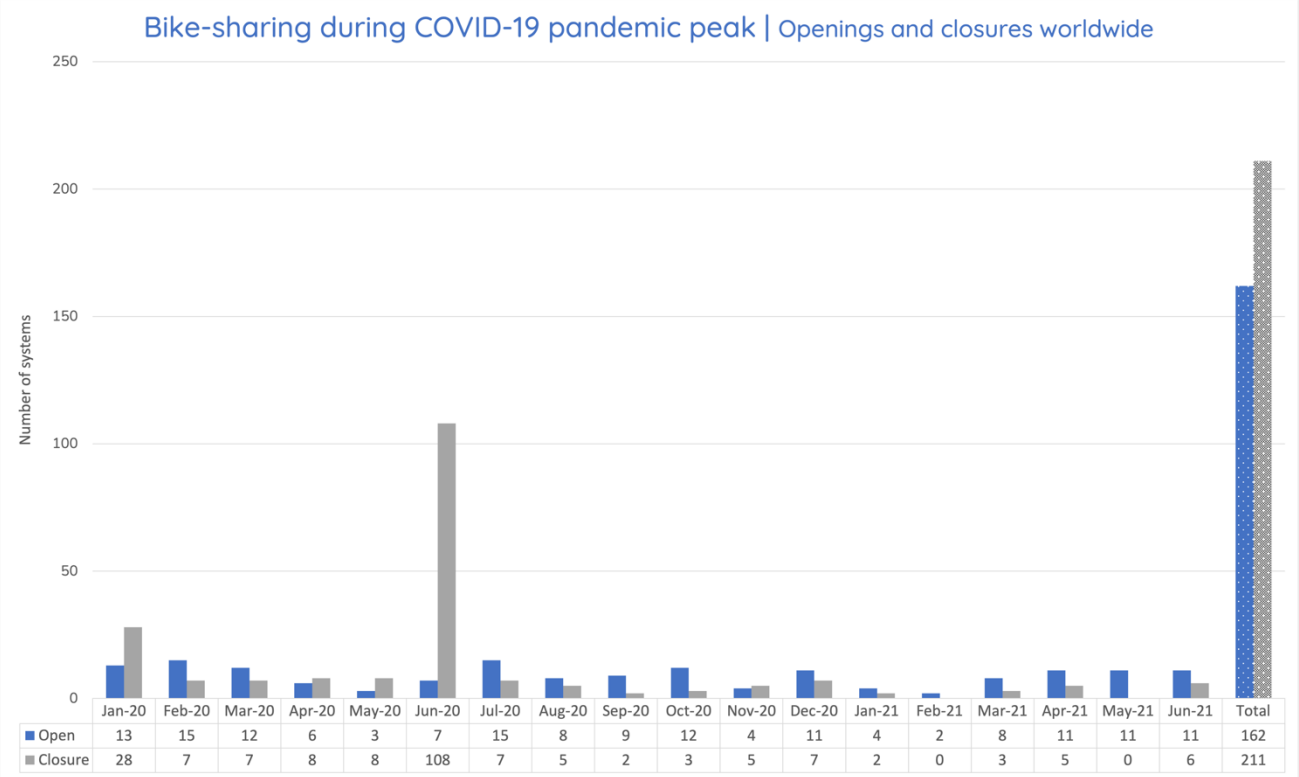
3. Bike-sharing in pandemic times

It's a cliché to mention that the COVID-19 pandemic changed almost every aspect of our lives and caused multiple impacts on our cities' landscapes, economies, and citizens' lives. Bike-sharing is not an exception. On the one hand, biking appeared as a safe and convenient alternative to other modes of transit, and many countries and regions saw impressive growth in the number of cycling trips. On the other hand, some companies didn't sustain the lockdown impact and suspended services. Also, people reduced their general daily trips, decreasing the number of users of many bike-sharing systems.

Country	# of closures
United States	120
China	14
Brazil	12
Italy	11
United Kingdom	8

Figure 12: Top 5 countries with systems closed from January 2020 to June 2021

The United States ranks first in the number of closures (*Figure 12*) in the period, and 2020 is the first year ever when the number of closures worldwide surpassed the number of new systems opened. The monthly balance for the pandemic period is displayed in *Figure 13*. But even the 2020 closures need to be looked at carefully. Eighty-four of the 211 systems closed during this period are linked to one specific equipment provider/operator from the United States: Zagster, that suspended its operations in March 2020 and terminated all of its services in June 2020 apparently due to COVID-19's impact.



	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Total
Open	13	15	12	6	3	7	15	8	9	12	4	11	4	2	8	11	11	11	162
Closure	28	7	7	8	8	108	7	5	2	3	5	7	2	0	3	5	0	6	211

Figure 13: Openings and closures of bike-sharing systems from January 2020 to June 2021

A study developed by professors Ralph Bueler and John Pucher (COVID-19 Impacts on Cycling, 2019–2020),published in April 2021, evaluated the growth of cycling trips in Europe, Canada, and the United States. The authors compared 2019 and 2020, using data from automatic cycling counts, and found that European cities saw an 8% increase in cycling, the United States was up by 16%, and 3% more in Canada.

While cycling was growing, many bike-sharing systems were contributing to the pandemic relief. The Pedestrian and Bicycle Information Center mapped more than 70 known initiatives to provide free rides or passes to essential workers in cities like Boston, Berlin, Bogotá, Glasgow, Helsinki, Houston, Lisbon, London, Moscow, New York, Nice, Vancouver, Villavicencio, and Washington, DC.

The pandemic also caused an increase in food and other goods to be delivered by bike. According to a North American Bikeshare & Scootershare Association (NABSA) survey, 15% of the operators in the USA, Canada, and Mexico partnered with delivery companies. In São Paulo, Brazil, the local operator (tembici) partnered with the main delivery app (iFood) and started an e-bike program for food delivery with 500 pedelecs. The food-tech company has an ambitious goal of 50% of all trips made by zero-emission vehicles by 2025, including e-bikes.

As the future is still uncertain regarding the pandemic, bike-sharing proved to be a resilient alternative to get around. After the record closures in 2020, the number of systems launched in 2021 is already more significant than closures (47 new systems versus 16 closures).

4. A little bit of history

Predating the Map was The Bike-sharing Blog which had occasional posts with news from the bike-share world. "The map invented itself," said Paul DeMaio, creator of both initiatives (the Blog and the Map). "The Blog was a great way to share new ideas and photos but it wasn't until the Map that we achieved a visual panorama of what was going on around the world."

Fourteen years ago, on May 17th, 2007, the first post on The Bike-sharing Blog saluted readers and promised to facilitate the demand for information about the growing concept of bike-sharing. By that time, 53 systems were operating worldwide, the vast majority (50) in Europe, including Bicing (Barcelona). By the end of that year, there were already 71 systems. In 2008, the number doubled, rising substantially year after year. Since then, information about more than 3,000 systems was recorded in The Meddin Bike-sharing Map's database, peaking at around 2,500 open systems. Currently, there are around 2,000 active schemes in 85 countries.

DeMaio discovered bike-sharing while a university student. In 1995, he came across a web page with information and photos of Copenhagen's Bycyklen, considered the world's first "second generation" system. He found it fascinating because it was a mixture of cycling, environmentalism, and public health. One year later, he went to Denmark to do a semester abroad and to learn more about bike-sharing. Four years later, he traveled to Helsinki, in Finland, and had the opportunity to build bikes for the CityBikes project.

Figure 14: DeMaio on a Bycyklen in Copenhagen, Denmark in 1996

"It was difficult to understand who had the right skills for setting up a bike-sharing system. Is it the bike people? The transit people? Some other group? It took some time for local governments and the private sector to figure out how to do it: who sells the bikes, who places the stations, who develops the technology to rebalance the bikes, and so on. My goal was to make this information available for everyone with The Bike-sharing Blog," says DeMaio. After finishing his masters, he set up the first bike-sharing consulting firm in North America, participated in planning the U.S.'s first large-scale system (Capital Bikeshare, in the Washington, D.C. metropolitan area), and started the Blog and then the Map.

Meanwhile, a couple of hundred kilometers northeast from DeMaio, another bike-sharing enthusiast was advocating for implementing a system in his own town: Russell Meddin, a "self-made expert" based in Philadelphia. In 2007, he created a website and a Facebook page called Bike Share Philadelphia, publishing inspiring news, pictures, and videos from bike-sharing in other cities, while trying to convince his city officials to set up a scheme at home. In January 2008, Meddin organized the Bike Share Philadelphia Public Forum, the first bike-sharing event in the U.S. Four hundred people attended, primarily local advocates, environmentalists, and planners, but DeMaio was one of the participants from outside of Philadelphia.

Meddin and DeMaio met on that snowy Thursday of January 2008. "He just had a passion, a commitment to the concept, his love of bicycles... And his sense of humor was the cherry on the top. I think I approached him about contributing to the Blog. And he just said yes. So, he began writing and became so prolific that he pretty much took over and became the main author. He also started to know everything that was going on and knew everyone that was setting up projects in many cities," remembers DeMaio.

Figure 15: Russell Meddin at the Indego bike share program launch in Philadelphia. April 23th, 2015. Photo: Darren Burton

The Blog and Map grew along with the bike-sharing expansion worldwide. The golden age of blogs helped create a community of enthusiasts and professionals that found a safe harbor for knowledge exchange and information in The Bike-sharing Blog and The Bike-sharing World Map.

Sadly, Russell Meddin passed away on April 14th, 2020. DeMaio tried to keep feeding the map by himself. "The Map needed to go on because it's useful, it's valid information for many people around the world. It's simply something that needs to exist. But this issue is so big, and there's so much going on. I quickly realized that Russell's efforts to maintain the Map were too big for any one person to do it again; it does take a village --a global village as a matter of fact -- to keep it alive and to improve," said DeMaio. The global village of curators now includes eight people from different countries and backgrounds. In 2021, PBSC Urban Solutions kindly sponsored The Meddin Bike-sharing Map, allowing the first contractor, a freelance curator, to assist in the laborious task of keeping the Map updated with so much happening around the world. In memory of Russell Meddin and envisioning a better future for generations to come, the wheels keep on turning at The Meddin Bike-sharing World Map and we'll keep feeding the Map with helpful information for hopefully a long time to come.

5. Acknowledgments and limitations

With over 4.9 million views since it’s launch, the Meddin Bike-sharing World Map is a global reference of shared bicycle systems, a continuous effort to discover, map, and update every new system worldwide. We know this is a herculean job, and we know that the Map may lack updated information about many systems.

In its 14 years of existence, DeMaio and Meddin updated the map in a fully volunteer capacity. Earlier this year, PBSC Urban Solutions, one of the leading equipment providers for bike-sharing schemes globally, decided to sponsor our work. It allowed the project to have a freelance curator and produce this report.

In the current period, we're working hard to make a more consistent database, but we acknowledge the following issues:

- In 2020, we **migrated the database** from Google Maps to a custom MySQL server, more powerful and flexible for curators and researchers. Some data was not automatically imported, so we are still fixing part of the database. Regarding more critical data that impacts charts and statistics presented here, we're still **improving information about start or closure dates on 139 systems.** This information is not readily available on the internet, so researching non-obvious sources consumes a lot of time.

- The **number of bicycles and stations may be outdated** in some systems. It's easier to discover news when a system is launched rather than having information about increasing or decreasing the number of bikes or stations. We're working to implement an API that can automatically update information on systems that already use GBFS (General Bikeshare Feed Specification). However, we know that less than 600 systems worldwide have adopted this standard, so manual updates will still be part of our routines.

- **China** is experiencing a second wave of free-floating systems and a new method to regulate them. After the first boom in 2017 and its consequences (stolen bikes, parking problems, and piles of damaged bikes), the country is improving the geofencing technology and limiting the number of bikes on the streets. At the same time, many station-based systems are being defunded or shut down. These changes are happening very fast, and considering the significant number of systems, we know that **part of our database is outdated**.

- In **Europe**, we decided not to include some interesting bike rental systems on the map. Blue Bike (Belgium) and OV-Fiets (the Netherlands) offer a very convenient "last mile" solution for citizens and have been available for quite a long time. With bikes disposed at train stations, these systems differ from our definition of bike-sharing as 1) they don't consist of a network of docking/parking stations: instead, there's usually one parking location in each municipality or train station, obliging the user to return the bike to the same station as it was taken; 2) the rental duration is longer than traditional bike-share systems, allowing users to spend many hours or even a day with a bike. Regarding the German Call-a-Bike, we're updating our records as the system offers bikes in two different methods, depending on the city: available at trains stations (not included in the Map) or on the streets as a regular free-floating bike-sharing (included on the Map). Other long-term rentals or subscription systems (such as Brompton Cycle Hire in the UK) are also not included on the Map, as they also differ from our definition of bike-sharing.

6. Our team

Chumin Yu (focus: Oceania)

Chumin got fascinated with bike-sharing during her stunt travelling around the world. She saw how easy it was to set up, rent a bike for a few hours and how affordable it was -- particularly in Asia. By the time she got back to New Zealand, she became an avid fan. She wrote her end of year thesis on them and also ended up working for a shared bike company. At the moment, she is working for the Local Government in Melbourne Australia - slowly but surely pushing for the bike cause.

Oliver O'Brien (focus: Website and Europe)

Oliver has been studying bikeshare systems since he built Bike Share Map to visualise live data from the London Bicycle Sharing System back in August 2010. He has amassed several terabytes of bikeshare data since then and maps the live status of around 500 of the world's bikeshare system. He is Centre Technical Manager at the ESRC Consumer Data Research Centre (CDRC) based at University College London (UCL). He is also a data journalist for Zag Daily, an online magazine specialising in the e-bikeshare and e-scootershare in UK and Europe.

Paul DeMaio (focus: Map admin and Mexico)

The Blog and Map weren't enough to bring bike-sharing to Paul's home region, so he figured he'd do it himself! Paul founded MetroBike in 2005 to hasten the introduction and growth of bikeshare in the Washington, D.C. region and internationally. Fortunately, he found supportive clients regionally and abroad -- including being hired by the City of Copenhagen where he originally learned about bike-sharing -- that have allowed him to implement some of the best bike-sharing systems around. This includes Arlington County, Virginia, U.S. where he co-authored the first public tender for a service in the U.S. which became Capital Bikeshare, launching in 2010. He continues to assist in managing the service that now has 660+ stations, 6,000+ bikes, and serves seven municipalities in the D.C. region.

Renata Rabello (focus: South America)

Head of Urban Planning at Tembici, coordinates urban planners and engineers since 2016, responsible for the planning of the bike sharing systems of Brazilian and Latin America cities. Master degree at FAU-USP (2019) in the area of Landscape and Urban Design. Architect and urban planner graduated from FAUUSP in 2012. Completed the program of Dual Formation FAU-EPUSP Civil Engineering of the Polytechnic School. She did an exchange study for a year in Barcelona (2008/09) at ETSAB-UPC: Barcelona Technical College d'Arquitectura of the Universitat Politècnica de Catalunya.

Steve Chou (focus: Canada)

Steve has been working for the City of Vancouver for the past ten years on a range of projects supporting healthy and sustainable transportation and public life in the city. He became involved with bike sharing as part of the team responsible for advancing the approval and implementation of Vancouver's bike share system which launched in 2016. The Meddin Bike sharing World Map proved to be a valuable resource for Steve and he hopes to support the development of the map so it can continue to be a source of knowledge and insight for others.

Thiago Benicchio (focus: Global curator)

Thiago is a journalist, urban mobility researcher, and consultant based in Sao Paulo, Brazil. He rediscovered bicycles in his adult life while doing his graduation project -- a documentary called "Sociedade do Automóvel" (2004). He published a blog (Apocalipse Motorizado) from 2005 to 2011. At the same time, he engaged in the Critical Mass movement, Carfree-Days organizing, activist initiatives and policy advocacy. In 2009 he was one of the founders and the first Executive Director of Ciclocidade (Sao Paulo Cyclist's Association) until 2014. He worked as Active Transportation Manager of ITDP Brasil (2014-2018), coordinating and developing bicycle-related projects in Brazilian cities. Additionally, Thiago published articles in books and magazines, joined cycling forums, and cycled in diverse world cities. He became a father in 2018 and expanded his interests towards cities and childhood.

Our team couldn't have produced The Meddin Bike-sharing World Map without the support of our sponsor, PBSC Urban Solutions. We greatly appreciate their financial support for our work.

The Meddin Bike-sharing World Map welcomes input about this report and notices about new and modified bike-sharing systems. We can be reached at bikesharingworldmap@gmail.com. Also, you can follow us on Twitter at @bikesharingmap.