

Global new mobility market insights Part 3.

Automotive connectivity start-ups –
Funding and acquisitions

White Paper

Giving substance to a new reality.

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Version 01

Munich, February 2022

Management summary

In Part 3 of our study on the global new mobility market, we investigate automotive connectivity start-ups by analysing funding and acquisitions. The key takeaways of our research are summarised in the following.

Funding:

- Global funding amounts for connectivity start-ups have grown since 2011 and reached \$1,221 million in 2021
- In the years between 2011 and 2020, 85% of the total funding was raised by 25 connectivity start-ups, which accumulated funding of \$956 million in 2021

Funding – Top 25 connectivity start-ups:

- Asia is dominating funding into connectivity companies with a share of 55%
- Connectivity Onboard and Connectivity Services are dominated by Asian start-ups, while Connectivity Offboard is led by North American newcomers
- Banma Information Technology (Connectivity Onboard), Newlinks Technology (Connectivity Services) and Wejo (Connectivity Offboard) are the highest funded companies in their respective sectors

Acquisitions:

- During the past decade, 43 acquisitions were conducted in our research area of automotive connectivity
- Most of the companies which acquired in the field of connectivity are active in the industry of Parking & Mobility
- While Automotive Suppliers focused their acquisitions on Connectivity Onboard companies, Automotive OEMs were selecting Connectivity Service start-ups

Summarising, funding into connectivity start-ups is still on the growth path, despite a decline in the 2020 Covid pandemic. Especially Connectivity Offboard start-ups have achieved to increase their funding in recent years.

Among the top funded companies, we see trending business activities in the fields of data analysis (Wejo), car operating systems (Banma Information Technology) and fleet management (Newlinks Technology).

Acquisitions in connectivity companies differ between Automotive Suppliers and OEMs. While Automotive Suppliers acquired companies in technical fields, OEMs focused more on innovative mobility and car related services.

Introduction

As a specialised consulting firm in the automotive industry, we regularly provide our clients with latest insights on future trends and developments within the mobility sector.

In Part 1 of “Global new mobility market insights” (May 2020), we focused on the functional and regional destination of funding in the CASE (Connectivity, Autonomous driving, Smart mobility, Electrification) mobility trends and in Part 2 (November 2020), we focused on the global investor landscape.

Automotive connectivity as the comprehensive communication between vehicles, users, and the surrounding infrastructure is a rising sector within the mobility industry. Thus, in the scope of Part 3 of our analysis we detail our view on automotive connectivity start-ups by looking at the funding into companies and acquisitions of companies.

- Automotive connectivity funding
 - Deep dive into funding
 - Deep dive into top 25 connectivity start-ups
- Automotive connectivity acquisitions
 - Deep dive into acquisitions of automotive suppliers and OEMs

For further analyses, the connectivity sector is divided into three business sectors: Connectivity Offboard, Connectivity Onboard and Connectivity Services.

Connectivity Offboard covers all companies which analyse data and provide infrastructure for data transmission (e.g., big data analytics, backend software, cyber security services) and provide capacity for storage (e.g., via cloud).

All companies in the field of scanning surroundings by different sensors, output processing from SW- and HW-systems and interaction with the driver (e.g., user functional software, basis software, security software, E/E hardware, HMI hardware, Car-to-X hardware) are covered in the Connectivity Onboard business sector.

The business sector Connectivity Services covers all companies in the field of mobility apps, smart parking and fleet management.

We hope that the insights into the CASE connectivity funding and acquisitions will help to broaden the view on new mobility trends and support driving businesses forward.

1. Automotive connectivity funding

In the last decade, high funding amounts have been poured into automotive connectivity start-ups. As Figure 1 shows, total funding into automotive connectivity start-ups has grown from 2012 to 2017 and peaked at \$938 million in 2017. Since 2017, funding has declined until peaking again in 2021 at \$1,221 million.

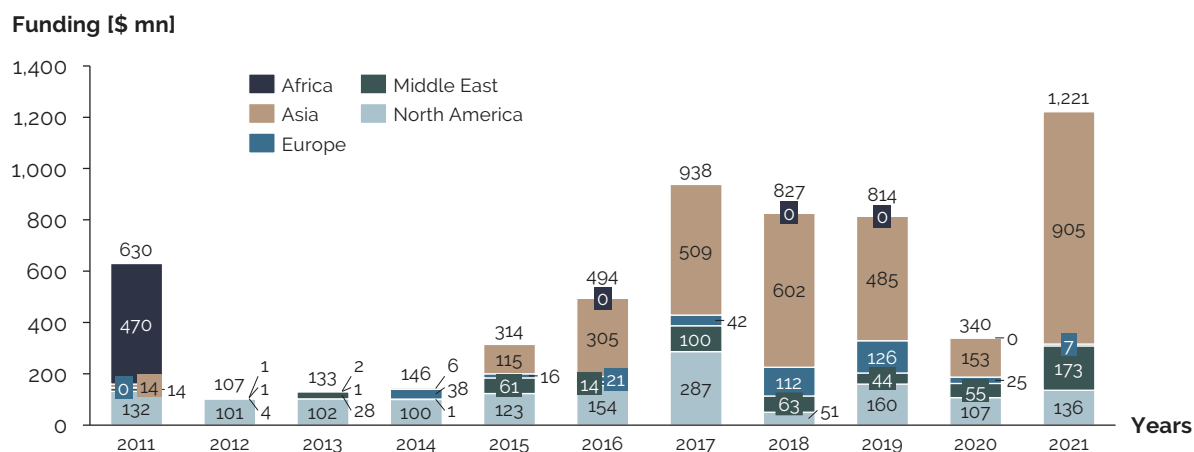


Figure 1: Funding into automotive connectivity start-ups per year and region

In terms of regional receivers, Asian companies overtook North American companies in funding in 2015 and still lead by a wide margin (74% in 2021). Funding in European companies has increased from 2011 to 2019 and peaked at \$126 million in 2019. Since 2019, funding in European companies has declined.

In the years between 2011 and 2021, more than 85% of the global funding was raised by 25 companies. Since these companies raised the largest share of funding, the top 25 connectivity start-ups will be analysed in more detail in the following.

\$1,221 mn

Peak of funding into the connectivity sector in 2021

>85 %

of the total funding was raised by 25 companies

Funding [\$ mn]

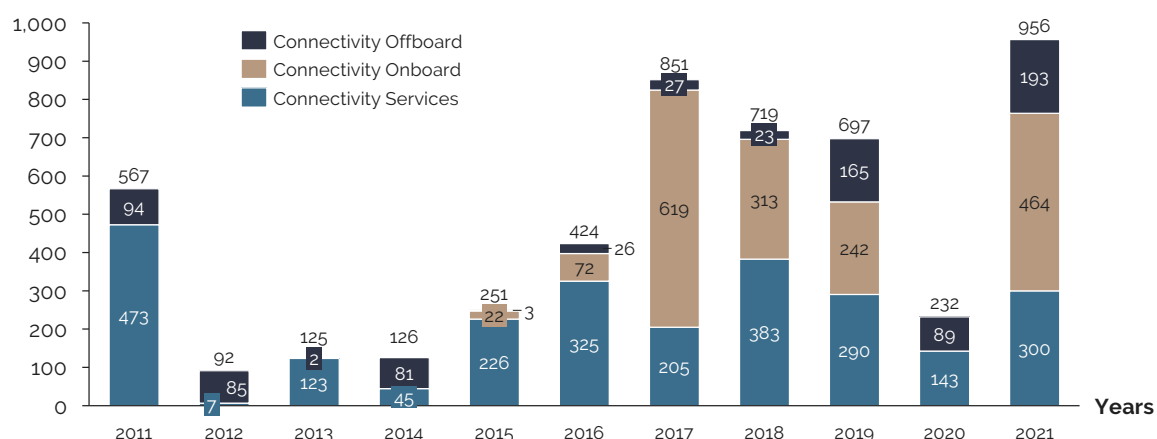


Figure 2: Funding into the top 25 connectivity start-ups per year and business sector

\$619 mn

Peak of funding in the Connectivity Onboard sector in 2017

Figure 2 visualises how the annual distribution of funding into the top 25 connectivity start-ups and the three defined business sectors has developed. Starting in the year 2012, funding into connectivity start-ups was on the rise. Funding into Connectivity Services was trending over the whole timeframe in scope. Since 2015 we see funding into the Connectivity Onboard sector, which has been the dominating sector in 2017 and 2021. Furthermore, in the past three years more funding amounts were poured into Connectivity Offboard start-ups.

Funding [\$ mn]

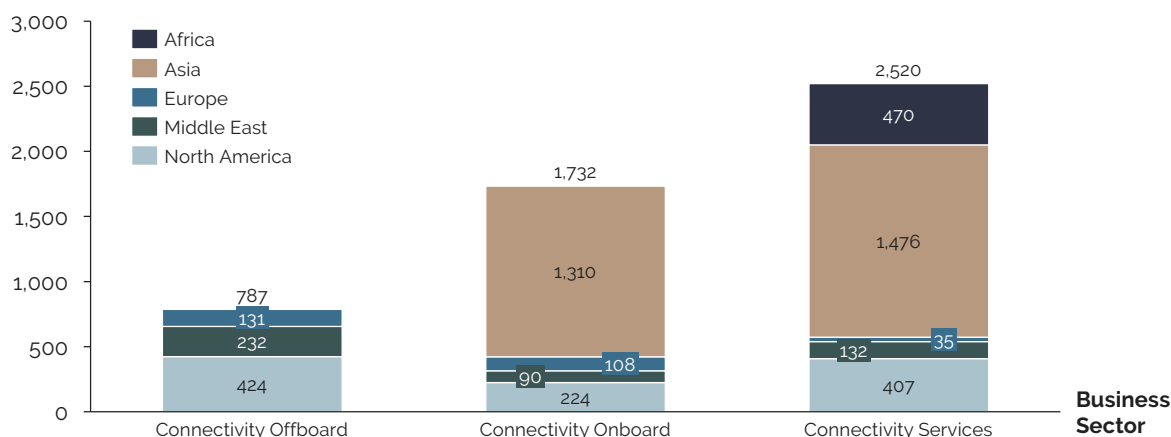


Figure 3: Funding into the top 25 connectivity start-ups per business sector and region (2011-2021)

55 %

Asia's share of funding into top 25 connectivity start-ups

Looking at the regional distribution of connectivity funding (see Figure 3), Asia is dominating by far in the two sectors Connectivity Onboard and Connectivity Services. Only the Connectivity Offboard sector, in which Asia was not present in the past 10 years is dominated by North American start-ups. Compared to the high

funding amounts in China and North America, Europe only plays a minor role. In the sectors Connectivity Offboard and Connectivity Onboard Africa is not even present with respective start-up funding. Special focus on Connectivity Services can be seen in Africa, where only one company (Tracker Connect) has acquired intensive amounts of funding in the past ten years.

The top 25 funded connectivity start-ups are distributed across the globe (see Figure 4). Most of them have their headquarters in the USA or in China.

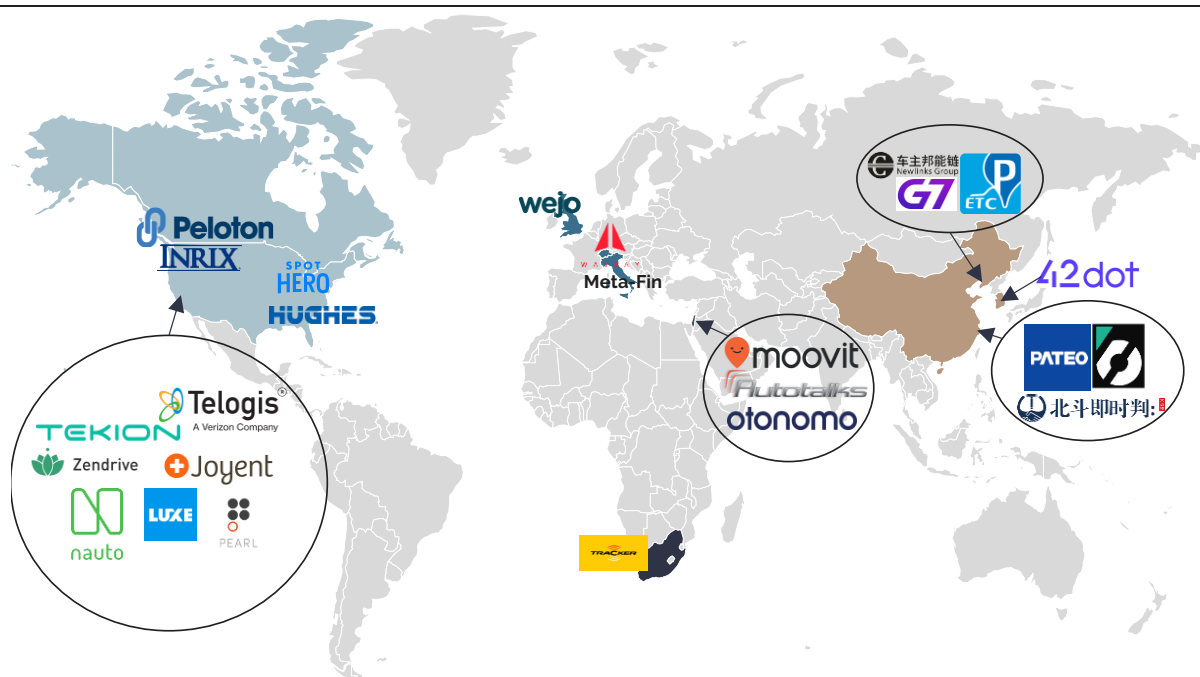


Figure 4: Locations of the top 25 funded connectivity start-ups

In Table 1, the top funded company from each business sector is analysed in detail. The most successful firm in terms of funding from the sector Connectivity Offboard is Wejo, a UK company founded in 2013 and active in the field of car data analysis. With their findings from car data, they consult automotive OEMs and facilitate the car usage of drivers. They address a broad field of customers from OEMs to traffic analysts and city planners.

In the sector Connectivity Onboard, Banma Information Technology from China is the top funded company. They provide the in-car operating system AliOS to OEMs, which enables a system of connected vehicles and offers smart functions for customer comfort. Banma's automotive software solutions are provided to OEMs such as SAIC Motor, FAW Group, and Volkswagen Group. Founded in

2015, they received their funding between 2018 and 2021 and further planned funding in upcoming years has already been announced.

With Newlinks Technology, another Chinese company is top funded in the sector Connectivity Services. They provide a card free payment system via an app for refuelling at petrol or EV charging station. They address operators of such stations as well as private app users but limited within China.

Company	Wejo	Banma Information Technology	Newlinks Technology
Business sector	Connectivity Offboard	Connectivity Onboard	Connectivity Services
Business model	Car data analysis and OEM consultancy	Operating system for connected cars	Refuelling payment app & fleet energy management
USP	<ul style="list-style-type: none"> Gathering and analysis of data from connected vehicles with machine learning Providing value to end customers by facilitating EV charging and parking space search 	<ul style="list-style-type: none"> Provision of an in-car operation system (AliOS) to OEMs Realising a system of connected cars Customer comfort functions like smart refuelling, parking, ordering and trip planning 	<ul style="list-style-type: none"> Providing fuelling service with card free payments Broad business area from traditional gas stations over EV charging points to a fleet energy management application
Location	United Kingdom, Chester	China, Shanghai	China, Beijing
Market	Worldwide	China	China
Customer	OEMs, traffic analysts, city planners	OEM	Petrol stations, charging stations, private customers
Founded date	2013	2015	2016
Number of employees (2020)	101-250	101-250	11-50
First/most recent funding	2013/2020	2018/2021	2018/2021
Funding	\$131 mn	\$697 mn	\$645 mn

Table 1: Top funded company from each business sector

2. Automotive connectivity acquisitions

Acquisitions in the connectivity sector started to increase in 2015 and peaked in 2018 with a total number of 9 acquired companies. Recently, in 2019 and 2020 there were 5 acquisitions per year. Looking at the business sectors of the acquired companies, Connectivity Offboard was mostly demanded in the years 2015-2017, while Connectivity Onboard had its peak between 2016 and 2019. However, the trending business sector until 2020 in terms of acquired companies was Connectivity Services. Since 2016, at least 2 acquisitions per year can be observed, yet there was no acquisition in this Connectivity Services in 2021 (see Figure 5).

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acquisitions of connectivity start-ups were the peak in 2018

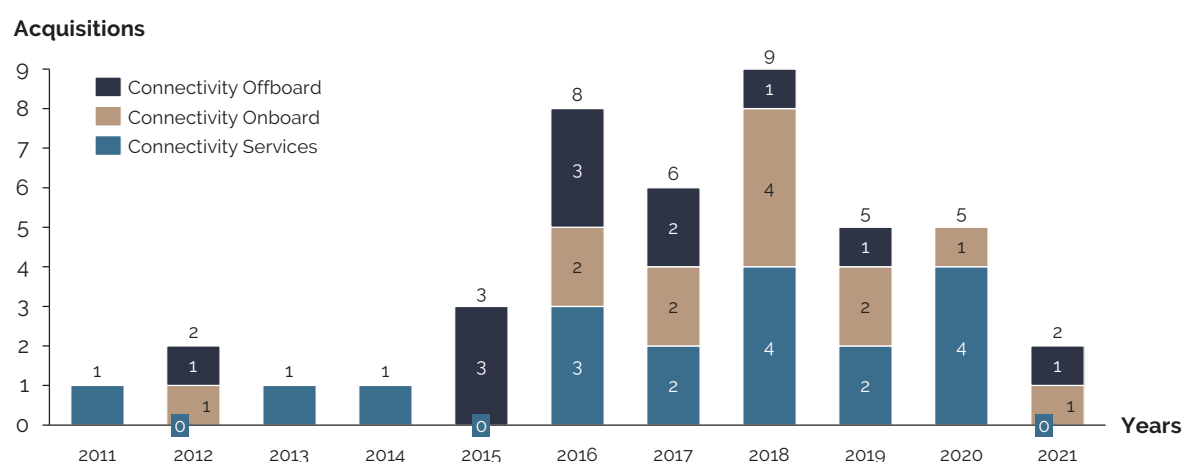


Figure 5: Acquisitions per year and business sector

Most of the companies which acquired in the field of connectivity during the past 10 years are active in the industry of Parking & Mobility (see Figure 6). They make up for 8 of the total 43 acquisitions and 7 of them acquired within their own business sector of Connectivity Services.

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out of 43 acquirers are active in the Parking & Mobility industry

Concerning the automotive industry, Suppliers (7 acquisitions) are more active in acquiring than OEMs (4 acquisitions) and we observe significant differences in their acquisition targets. While Suppliers acquired 5 Connectivity Onboard companies, OEMs focused their acquisitions on Connectivity Services with 3 out of their 4 acquisitions. Consequently, OEMs left acquisitions in technical fields (e.g., HMI hardware) to their Suppliers and focussed on innovative mobility and car-accompanying services (e.g., smart parking).

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out of 43 acquirers are active in the automotive industry

Software & Data companies are furthermore very active in acquiring start-ups from the Connectivity Offboard sector (4 out of 6).

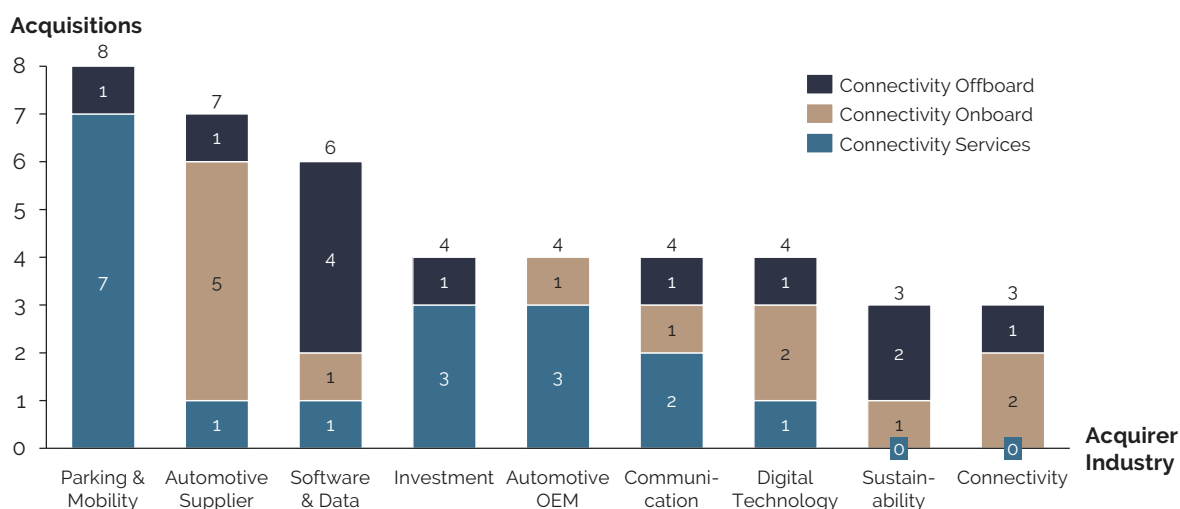


Figure 6: Acquisitions per acquirer industry and business sector of acquiree

Investment companies see the highest potential in the business sector Connectivity Services followed by Connectivity Offboard according to their acquisition behaviour.

Business Sector	Acquiree	Region	Business Model	Acquirer	Region
Connectivity Offboard	CarlQ	Asia	Data for predictive maintenance	Varroc group	Asia
Connectivity Onboard	CHINA TSP	Asia	Smart Cockpit, Antenna, Internet of Vehicles	Beijing BDStar Navigation Co., Ltd.	Asia
	KOTEI	Asia	Connected Car, Smart Cockpit, Intelligent Drive	SAIC Motor	Asia
	DRUST	Europe	Insights about car and driving style	Continental	Europe
	Argus Cyber Security	Middle East	Cybersecurity for connected cars	Elektrobit	Europe
	Arilou Technologies	Middle East	Automotive Cybersecurity, Intrusion Prevention	NNG	Europe
Connectivity Services	Travel Car	Europe	Parking, Car Rental and Airport Transfers	PSA Group	Europe
	Drive mode	North America	App for Connecting Smartphone to Car	Honda R&D	Asia
	Luxe	North America	Valet Parking	Volvo Cars Group	Europe

Table 2: Acquirer industry: Automotive Supplier and OEM acquisitions

Finally, in Table 2 we look at the acquisitions of Automotive Supplier and OEM acquirer on a company level. Important topics of acquirees by Automotive Suppliers are predictive maintenance, internet of vehicles, cybersecurity for connected cars and driving style monitoring. Automotive OEMs focus on acquirees from sectors like smart cockpit, valet parking and car rental as well as apps for the connection of smartphone and car.

Different from previous insights, no American automotive acquirer can be observed, but European and Asian firms share the acquisitions nearly equally. The corresponding acquirees are worldwide distributed and trans-regional acquisitions happened by two European suppliers acquiring in Middle East and one European and one Asian OEM in North America, while the remaining acquisitions took place within one region.

60 %

of the acquisitions by
Automotive OEMs and
Automotive Suppliers
happened within their
own region

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About us

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