

END OF THE ROAD ...

... for international car makers in China?

How digitisation will reshape the automobile market

Mirjam Meissner | Jost Wübbeke

New firms from the IT sector are pushing onto the market. Competitive advantages for China's own suppliers. Security risks in transferring vehicle data to the state.

Main findings and conclusions

Digitisation in the automotive sector is moving faster in China than in Europe or the US. United in their aim of achieving an 'Internet of Vehicles', domestic companies and the Chinese Government are both fostering this trend.

Powerful, new domestic firms are currently surging into the Chinese automotive sector and changing the marketplace. These range from internet companies, smartphone manufacturers and telecoms firms to insurance businesses and even military companies owned by the state.

A new digital 'ecosystem' for vehicles is developing in China that is substantially different from other international set-ups. Products intended for the Chinese market will need to adapt to this in future.

- The Chinese Government is fostering the development of an Internet of Vehicles to create a competitive advantage for domestic companies. If successful, this strategy will have painful consequences for international automotive companies wanting to have a share of business in China.
- Data security is becoming a crucial competitive factor, as the compulsory transfer of data to the Chinese state raises questions about the security of sensitive information.
- China's Internet of Vehicles is still in its infancy, so international companies still have time to work on their strategic positioning and improve their competitiveness.
- Policy-makers and business associations need to explore ways of influencing political decisions on data security and standardisation in China, going beyond national borders and traditional dividing lines between sectors. This could help curb the growing discrimination international players are facing in the Chinese marketplace.

China's IT industry conquers the car

Challenge for international car makers



1. Emergence of a new and fundamentally different marketplace

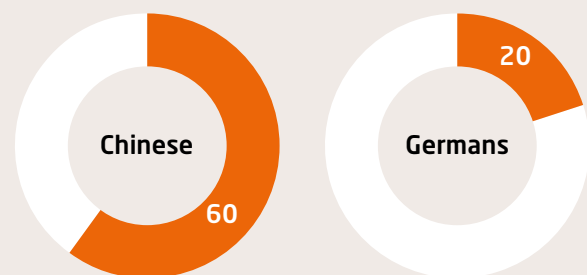
Digitisation of the automotive sector is progressing very differently in China than it is in Europe or the US – the tone is not being set by Google or Apple, but by innovative **Chinese** companies with influence. **These upcoming firms are rapidly pushing their way into the Chinese automotive sector with radically new business models** and are changing the market environment as they go.¹

1.1 VEHICLE CONNECTIVITY IS EXPANDING FASTER IN CHINA THAN IN EUROPE AND THE US

China's young internet companies in particular are projecting their own dynamics onto the automotive sector. The strengths of such companies lie in short product cycles and

Figure 1: Survey on buying cars

No. of respondents who said yes when asked if they would buy a different car to get better digital services (in per cent)



Source: McKinsey Connectivity and Autonomous Driving Consumer Survey 2015

© MERICS

rapid penetration of new business segments. **The keen interest Chinese car buyers are showing in digital applications** is a further factor accelerating digitisation of the sector (see figure 1). If this rapid pace continues, vehicle connectivity is set to make faster progress in China than in Europe. In fact, China could soon be dictating the pace internationally and may well overtake the US. Only a severe economic crisis is likely to slow this trend down.

1.2 STRONG NEW COMPETITORS

The competitors who are surging into the Chinese automotive sector could not be more different. They range from young start-ups to influential privately owned companies and major state-owned enterprises: internet companies such as Baidu ('China's Google'), Alibaba (e-commerce) and Tencent (social media) dominate the Chinese internet and are key sources of impetus in driving the development of an Internet of Vehicles. **The online services provided by these companies are shaping the digital habits of Chinese customers.** By breaking into the automotive sector, they are striving to emulate international competitors such as Google. Their strong market position provides them with the capital they need. They have first-rate data on users at their disposal and are experts on the preferences Chinese customers have.

Chinese **smartphone manufacturers** are the second driving force behind this trend. Xiaomi, LeTV (which is also a streaming service), Huawei and ZTE have all discovered the automotive sector. Xiaomi is already a serious rival for Apple and Samsung in the Chinese smartphone market, while Huawei and ZTE – both internationally experienced **suppliers of telecommunications equipment** – are also committed to enhancing connectivity in the automotive sector.

The list of sectors and companies surging onto the automotive market continues to grow: **state-owned military companies** are exploiting vehicle connectivity to consolidate the position of China's Beidou satellite navigation system in the

Companies and policy-makers in China are promoting vehicle connectivity as **'the Internet of Vehicles'** (车联网). This concept covers all forms of vehicle integration within a digital infrastructure, including communication between:

- a vehicle and its driver (or driver's mobile)
- several vehicles
- vehicle and intelligent transportation systems
- vehicles and the internet
- vehicles and mobile networks
- vehicles and satellites (satellite navigation)
- car-related online services.

In China, the **Internet of Vehicles** can also refer to self-driving cars.

transport sector. Their long-term plan is to drive the American Global Positioning System (GPS) out of the market. The basic infrastructure necessary for this could not be provided without the help of the three **state telecommunications companies**, however: China Telecom, China Unicom and China Mobile. These firms are also involved in developing intelligent transportation systems and have now discovered just how lucrative diagnostic and emergency services can be as business services, not to mention in-car entertainment.

Chinese **insurance companies** such as Pingan, on the other hand, have spotted a major opportunity to break into pay-as-you-go car insurance, where insurance premiums are based on how the policy holder actually drives. **Suppliers of software and hardware solutions for intelligent transportation systems** such as China Transinfo are developing system solutions for an Internet of Vehicles in cities, benefiting from their close relations with the state in the process (see section 2.3 as well).

1.3 A CHINESE 'ECOSYSTEM' WITH DISTINCTIVE SERVICES AND TECHNOLOGIES

The companies involved in these new developments are all competing with each other, as they share a common goal: to design a digital ecosystem for connected cars that will provide them with a sales market for their own distinctive services and technologies and enable them to be independent of foreign suppliers and patents. They collaborate closely to this end, building **cross-sector alliances where expedient**. A **lively network of powerful Chinese companies** has thus emerged since the start of 2015, all of whom are working together to set up an Internet of Vehicles.

Chinese internet companies in particular are pressing ahead in this respect. Their aim is to provide users with services for all spheres of life, including driving, shopping, studying, getting medical check-ups and many more activities. Some surprising partnerships have emerged as a result: Alibaba now co-ope-

rates with Norinco, the state-owned arms maker, for instance, but is also closely affiliated with China Transinfo, among others.

Baidu, Alibaba and Tencent are fierce competitors. However, when it comes to defending the Chinese market against international competition, they tend to forge alliances, a prime example being Didi and Kuaidi – the taxi and mobile transportation apps supported by Alibaba and Tencent. After a bitter price war, they merged in 2015 in order to ward off the competition from Uber.

1.4 CAR MANUFACTURERS ARE FACING COMPETITION IN THEIR CORE LINE OF BUSINESS

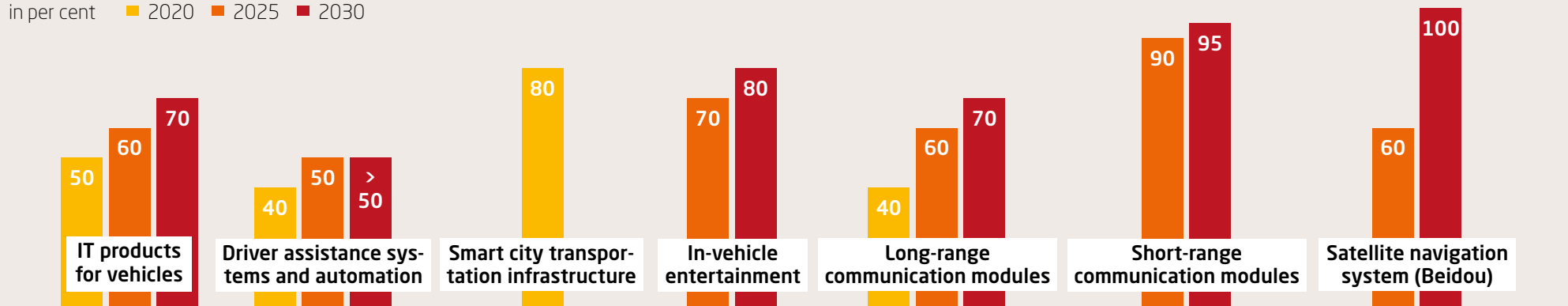
The internet and smartphone companies are not satisfied with just providing vehicle-related services – **their goal in future is to produce their own cars**. Like the US corporations

Google and Apple, these Chinese firms are trying to get into car makers' core business area now and could **potentially become tough, direct competitors for established names**. They have teamed up with some powerful partners in order to achieve their objectives: Tencent is collaborating with the Taiwanese electronics manufacturing company Foxconn, and LeTV has partnerships with Beijing Automotive (BAIC) as well as with Faraday Future and Atieva, both start-ups from Silicon Valley in California. Baidu has teamed up with German car maker BMW to develop a self-driving car. While Alibaba develops its own products, it also co-operates closely with Shanghai Automotive (SAIC). Xiaomi is keeping its cards close to its chest, but there is every indication that the biggest Chinese smartphone manufacturer and rival to Apple is working behind closed doors on a prototype of its own (in true Apple style!).

Figure 2: The Internet of Vehicles is aimed at strengthening Chinese technology

Projected market share of Chinese technologies according to the Made in China 2025 expert committee for vehicle connectivity

in per cent ■ 2020 ■ 2025 ■ 2030



Source: Made in China Key Technologies Roadmap 2015 | <http://www.cae.cn/cae/html/files/2015-10/29/20151029105822561730637.pdf>

© MERICS

2. Foreign companies' sales figures are at risk in China

Unlike government policy in Europe and the US, the Chinese Government is attempting to steer the development of the automotive sector in a direction it feels is politically desirable and is creating competitive advantages for Chinese car makers with its national industrial policy. Its efforts are being channelled through two fields of technology that have not been dominated by international players yet: e-mobility and the Internet of Vehicles.

2.1 INTERNET OF VEHICLES IS AIMED AT STRENGTHENING CHINESE COMPANIES

Beijing is striving to improve the opportunities for Chinese companies to develop their own attractive products. The aim here is to strengthen domestic companies by initially helping them to increase their market share in China before they move into international markets. The Chinese Government has been extremely successful with this strategy in the e-mobility sector since 2013. In line with political objectives, Chinese car manufacturers have dominated the domestic market up till now, achieving a market share of around 75 per cent in 2015.² A co-ordinated programme for promoting e-cars produced in China along with massive expansion and standardisation of battery-recharging facilities have helped to fuel this development.³

The Internet of Vehicles represents a continuation of this strategy by the Chinese Government: they support *Chinese* companies in the digitisation of the automotive sector in the hope of securing them a competitive edge. Automotive companies are not the only ones to benefit, though: a number of other strategically important industries are also profiting, including the internet, information and communications sectors, quite apart from Chinese software makers.

2.2 A COORDINATED POLITICAL STRATEGY IN THE COMING FIVE-YEAR PLAN

China is set to enhance this policy significantly over the next five years. The Ministry of Industry and Information Technology (MIIT) is currently devising a strategy to promote the Internet of Vehicles as part of the 13th five-year plan (2016-2020). According to internal documents, the Ministry of Transport is to publish a programme on computerising the transport sector as well as a strategy for cyber security in the sector. There are also two large-scale programmes which will have a far-reaching impact on the automotive sector: the *Made in China 2025*⁴ initiative and the *Internet Plus*⁵ action plan. Both programmes focus on the digitisation of the automotive or transport sector and promote the use of Chinese technology (figure 2). The Chinese Government will do everything in their power to implement these strategies, provided they are not forced to turn their attention to other issues by a serious economic crisis. We are likely to see an increasingly interventionist industrial policy which will have an enhanced negative impact in the years ahead on international companies competing in the Chinese automotive sector.

2.3 UNEQUAL COMPETITION

What is primarily driving the various Chinese companies' involvement in the automotive sector is economic interests. The powerful position that many of these firms enjoy today is due to **the state protecting entire economic sectors from international competition**, however. This is especially true of the internet sector. The Government's protectionist and censorship measures have made it difficult for foreign companies to enter the market. Some have been pushed out altogether, as in the case of Google, with the result that China's internet sector is now dominated by domestic companies.

The international competition is also being held off by the Government in sensitive business segments such as satellite

navigation using China's Beidou technology or telecommunications infrastructure. The pattern is similar with regard to software and hardware suppliers for intelligent transportation systems: many of the private companies predominantly operating in this sector have been subsidised by the Government right from the start. China Transinfo (mentioned above) is a prime example here (figure 3), as it was founded with the help of state subsidies and is still benefiting from Government intervention today. Competition is distorted, as these Chinese firms are closely involved in defining technical standards and are given preferential treatment by the state when it comes to public procurement activities and the allocation of research funds.

It is no coincidence that Chinese companies are building cross-sector alliances to work together on developing an Internet of Vehicles. According to planning documents, the Ministry of Transport supports partnerships between Chinese internet companies and the automotive industry. The collaborations between state-owned military enterprises and internet companies in the transport sector are a further result of political initiatives.

2.4 INFRASTRUCTURE AND STANDARDS THAT SERVE CHINA'S INDUSTRIAL POLICY

While China's internet companies are working on designing their very own digital ecosystem for automotive services, the state is also promoting a Chinese infrastructure. Using domestic technology and standards is a step aimed at creating a competitive advantage for Chinese businesses. Beijing is no longer prepared to bow to international IT standards, patents and associated licence fees, but would like to see Chinese standards adopted internationally instead. This applies to hardware and software systems for intelligent transportation systems as well as for satellite navigation and telecommunications infrastructure. The greater the level of vehicle connectivity to the Chinese infrastructure, the more the technical market environment will differ from the US and Europe.

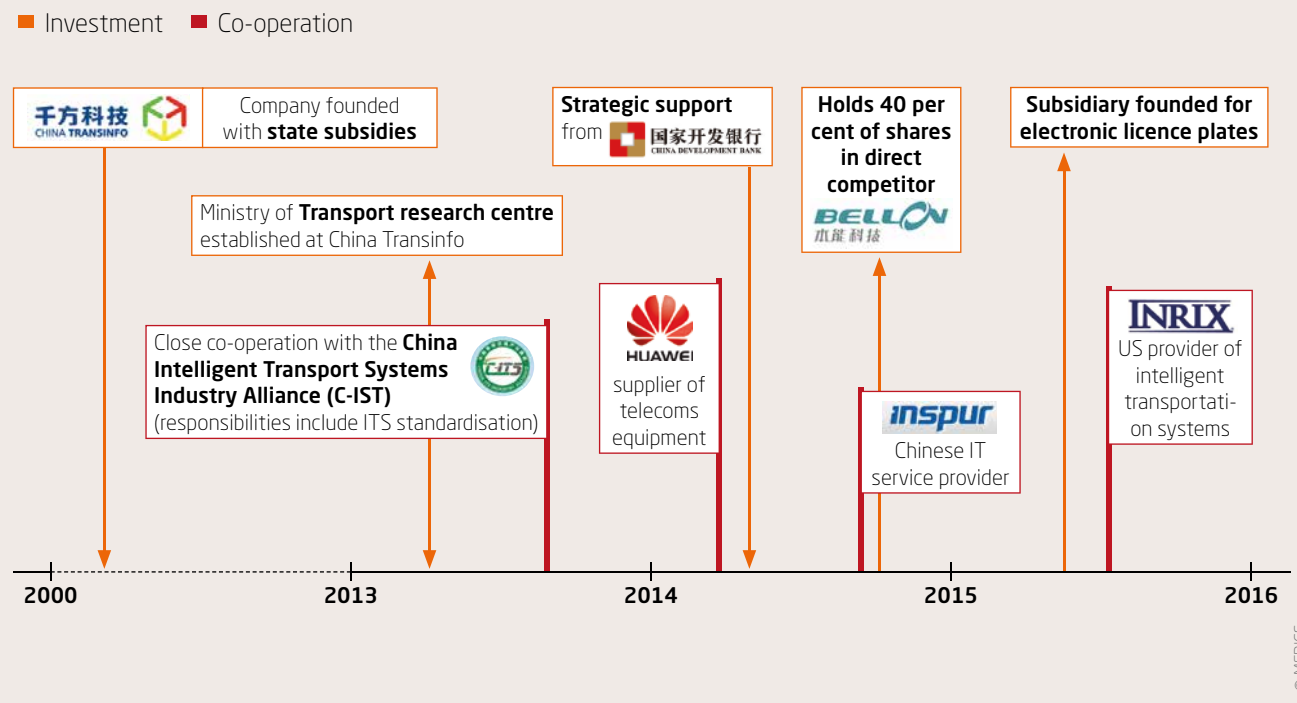
2.5 SECURITY CONCERNS RAISED BY TRANSFER OF DATA TO THE STATE

The majority of electric cars in China already pass on information about their location and battery status to government agencies. **If the compulsory transfer of data is expanded further, then sensitive company data could be at risk.** The more important China's digital infrastructure becomes to vehicles in future, the greater the security risk will be for vehicles and vehicle data.

Fitting an on-board unit is already mandatory in China for all new vehicles purchased by logistics and taxi firms. This unit accesses vehicle data over a CAN bus (a system to network control units in connected cars). Besides providing the identity of the driver and a full driving profile, the information includes technical information on the battery status, for example. The data gathered can be accessed by the company which owns the relevant vehicle, but it is also transmitted to government agencies.

Figure 3: Example China Transinfo

How China Transinfo benefits from state protection and partnerships



The state evaluates the data for decision-making regarding transport policy. Security agencies also have unrestricted access and the information technology company Sinoioiv uses the same database for an online-to-offline platform for truck drivers.⁶ In future, the Ministry for Transport plans to use the data to rate the creditworthiness of transportation companies. Employees' driving behaviour could thus affect the credit terms and land use rights awarded to the companies they work for and also impact their chance of successfully participating in public-sector tenders. Chinese car-insurance companies are already readying themselves to collect driving profiles from private cars. They are involved in pilot projects with the

state-owned China Aerospace Science & Industry Corporation (CASIC), among others, to design pay-as-you-go systems. If such projects are a success, the Chinese Government is likely to make these systems compulsory in future.

3. Conclusion: action is required before it's too late

A key market for the European and US automotive industry is about to leave familiar territory behind. Although it will be a number of years until the full impact of this trend is felt, there is an urgent need for action now. Politicians, business associations and any companies striving for long-term success in the Chinese automotive market would be wise not to sit back idly and wait, but to react in a timely manner.

POTENTIAL COURSES OF ACTION FOR POLICY-MAKERS, BUSINESS ASSOCIATIONS

Forge alliances

- Seize opportunities to create broad coalitions of interests across national and industry boundaries, since issues such as data protection and IT infrastructure standards do not only concern the automotive industry.

Influence the decision-making process

- Impact policy-making in China with respect to data protection and cyber security, and raise the Government's awareness of the issues involved – right up to the top leadership level.
- Involve China in international agreements on data protection.
- Strengthen China's involvement in international standardisation procedures; avoid purely national initiatives wherever possible.

POTENTIAL COURSES OF ACTION FOR AND COMPANIES

Strengthen strategic positioning

- Develop strategies for expanding into non-core segments.
- Analyse the digital habits of Chinese customers to gain a better understanding of consumer behaviour.
- Research new competitors and their strategies and assess implications for one's own business.
- Sound out opportunities for co-operating with new competitors, and become part of the Chinese network involved in developing an Internet of Vehicles.
- Prepare strategically for an increase in interventionist policies.
- Utilise market potential – spread risks in view of China's highly unpredictable economy.

Strengthen competitiveness

- Give priority to digital applications when developing products for the Chinese market.
- Provide products which are tailored to the digital ecosystem in China.
- Adapt to the faster pace and shorter product cycles.

Participate actively in promoting infrastructure specific to China

- Help to shape standardisation procedures. This may include forging partnerships with new competitors and involvement in sector alliances.
- Participate in pilot projects at the municipal and provincial level.

- 1 | The findings of this study are based on a comprehensive exploratory analysis of primary and secondary sources in Chinese: political programmes, documents and background information relevant to the automotive sector, a broad analysis of companies and their activities as well as public and specialist discourse on trends in the Chinese automotive industry in 2014 and 2015.
- 2 | <http://nev.ofweek.com/2015-07/ART-71008-8420-28978599.html>
- 3 | <http://www.merics.org/de/merics-analysen/analysechina-monitor/merics-china-monitor-no-17.html>
- 4 | http://www.gov.cn/zhengce/content/2015-05/19/content_9784.htm
- 5 | http://www.gov.cn/zhengce/content/2015-07/04/content_10002.htm
- 6 | www.95155.com

YOUR CONTACT FOR THIS ISSUE OF CHINA MONITOR

Mirjam Meissner
mirjam.meissner@merics.de

EDITOR

Claudia Wessling

PUBLISHER'S DETAILS

MERICS | Mercator Institute for China Studies
Klosterstraße 64
10179 Berlin
Tel.: +49 30 3440 999 0
Mail: info@merics.de
www.merics.org

DESIGN

STOCKMAR+WALTER Kommunikationsdesign
Figure on page 2: Kathrin Hildebrandt