Prof. Dr. Dr. Joachim Häcker

Future of Automotive Finance

Captives are best placed in the automotive and mobility market to manage customer needs in a digitalized world

Certified Financial Modeler

German Institute of Corporate Finance

Prof. Dr. Dr. Joachim Häcker
German Institute of Corporate Finance (GICF)

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1. MANAGEMENT SUMMARY

In 2013 the German Institute of Corporate Finance (GICF) published a study on the importance of the captives in the automotive arena. In the outlook we outlined the increasing importance of mobility. In this new study we pick up on this. The GICF is an independent and neutral research institute and has been dealing with the topics of finance, mobility and automotive for the last 10 years (www.gicf.de).

In 2020 we expect 5bn internet users, 80bn connected devices, and approx. 60% of the world's entire population living in cities (EY (2015)). Digital innovations, such as the internet of things, artificial intelligence, augmented reality and robotics are already changing the way we live and work today. The consumer of the future, at the center of this increasingly connected and urbanized world, will therefore be highly empowered with elevated access to data and information. Moreover, in the future, cities will increasingly act as a framer of legal regulations towards establishing sustainable and eco-friendly multimodal transportation ecosystems. These disruptive changes as well as the resulting challenges underline the need for rapid innovation. The automotive industry is reacting to this need, in reinventing its business model with mobility services at its core. In order to be able to use this form of mobility, users now expect a multitude of enabling services from a wide range of providers. The smartphone is at the heart of a digitally networked society which is always "on" and connected. Its strong penetration has ensured the creation of multiple innovative and asset-independent solutions, enabling access to multimodal mobility, devoid of time and location.

These transformative dynamics in the industry have ripened the opportunities for new players in rapidly penetrating the automotive market. Besides the big four technology companies – Google, Apple, Facebook and Amazon – emerging as important players, smaller companies such as app producers are expected to drive greater value creation. Data is the Holy Grail in the mobility services industry!

The intention of this study is to outline how the major change drivers "digitalization" and "customer behavior" impact the entire automotive industry and how the captive financial service provider can take a leading role in this context. The study is strategically orientated in describing the current status as well as the potential future developments. The paper can be seen as a strategic guideline for captives in Europe.

The study is based on 12 theses. These strategic statements are scrutinized and can define success for a captive. It starts with how the customer behavior changed in the last few years (I) due to the trends mentioned above. It continues with the perspective of the OEM, captives and car dealership (II)–(IV). In section (V) cities are investigated as a core player in the mobility game. Section (VI) gives an overview of the current advantages of today's captives. In section (VII) customer journey and customer data analytics as key success factors are analyzed. In (VIII) we start looking into the future by analyzing ongoing trends in mobility. In (IX), (X) and (XI) we build an understanding of how digitalization leads to a paradigm shift in mobility. Section (XII) summarizes why captives are best placed today and also points out important development areas for captives in the future.

Wishing you a good reading

Prof. Dr. Dr. Joachim Häcker

2. STRATEGIC FACTORS FOR BUILDING THE SUCCESSFUL CAPTIVE OF THE FUTURE

I Customer mobility behavior is changing!

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Customer mobility behavior is changing!

The last few years have seen a major shift in customer mobility behavior. Concepts such as car sharing, ride sharing, bike sharing and shared parking have seen strong growth rates (see exhibit 1a).

1. **Car sharing:** The global carsharing market is expected to grow from more than 7m members and approx. 112,000 vehicles in 2015 to approx. 36m members and approx. 427,000 vehicles by 2025. This implies a CAGR (Compound Annual Growth Rate) of 16.4% and 14.3% respectively (see Frost Sullivan (August 2016)). According to Roland Berger the global revenue forecast for 2020 is €3.7bn – €5.6bn with a projected market growth of 30% per annum.

2. **Ride sharing:** The global revenue forecast for 2020 is €3.5bn – €5.2bn with a projected market growth of 35% per annum even though ride hailing in Europe is still limited in some markets due to legal restrictions.

3. **Bike sharing:** The global revenue forecast for 2020 is €3.6bn – €5.3bn with a projected market growth of 20% per annum.

4. **Shared parking:** The global revenue forecast for 2020 is €1.3bn – €1.9bn with a projected market growth of 25% per annum.

On the demand side, Exhibit 1b) points out that the number of shared cars, as a percentage of total cars on road, will significantly increase in the future. On the supply side, there will be a tendency towards global plateauing of car production volumes. Unlike many other authors, we conclude that the captive will still be a sales enabler in the next decade.

These trends are particularly fueled by a young population that is moving away from car ownership towards and focusing on commuting from point A to B. This is evidenced in an interesting indicator which highlights the drop in share of young people (16–24 years) holding a driver's license in the US from 76% (2000) to 71% (2013) (Sivak (2013).

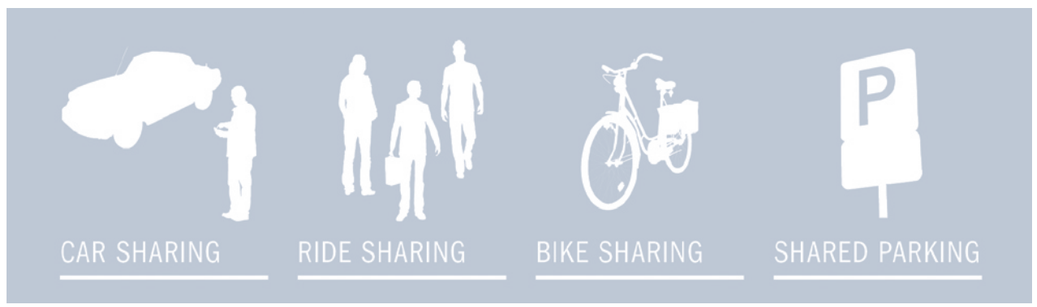
In exhibit 1c) it becomes clear that car sharing grew exponentially between 2006 and 2014. Car sharing, with its origin in Europe and North America, is now moving East. In the future, the expanding growth rate will rather occur in Asia/Oceania. In Europe, we can expect a solid linear growth of car sharing.

Rapid emergence of global players such as Uber, Zipcar or Didi has been driven by their business model innovation, pivoting on their ability to provide consumers with the freedom of on-demand access to car and related mobility solutions without having to own the vehicle. The rise of the mobile internet usage, combined with the availability of digital location and navigation data, has supported the enormous success of these new mobility business models.

Digitalization and data availability have not only changed the access to on-demand mobility but also transformed the automotive sales process, from a largely supplier-dominated market to a demand- or customer-centric market. Customers are better informed and more sophisticated than ever, they set the pace. During the entire car purchase process the customers now decide which channel they would like to use at which state of the purchase process. Customers will most likely prefer online platforms at the time of information gathering, in looking for different car options and/or alternative financing/leasing options. When they feel the need to switch to an alternative channel – a physical experience at a dealer showroom or establishing connect over a phone, e-mail or chat – they expect a seamless transition. Therefore, the information that has already been provided by the customer during online engagement needs to be leveraged.

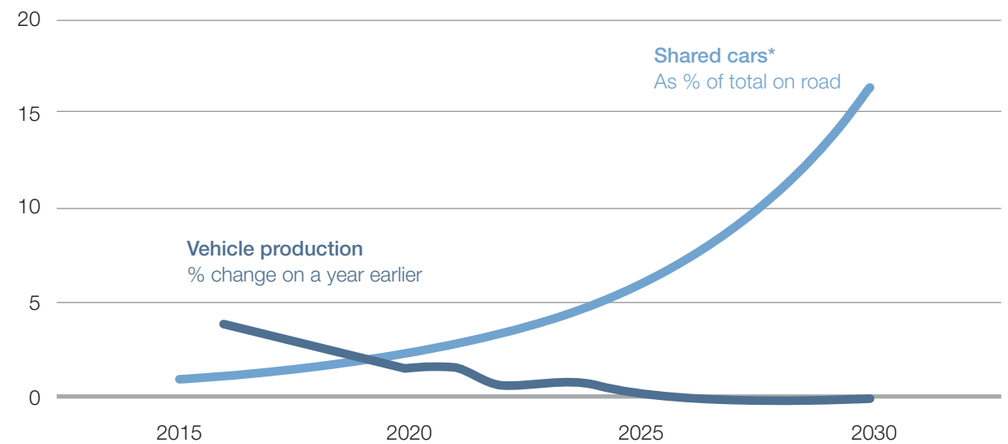
Based on the above, one of the biggest industry changes is just about to lift-off. With a backdrop of a well-informed and sophisticated customer and technology enabling an end-to-end digital car sale process – including financing or leasing – it is just a question of who will own and guide the customer experience in this new digital world. Will it be the automotive industry or will the tech and data giants lead the pack?

Exhibit 1a: Four growth opportunities in shared mobility



Source: Roland Berger, July 2014

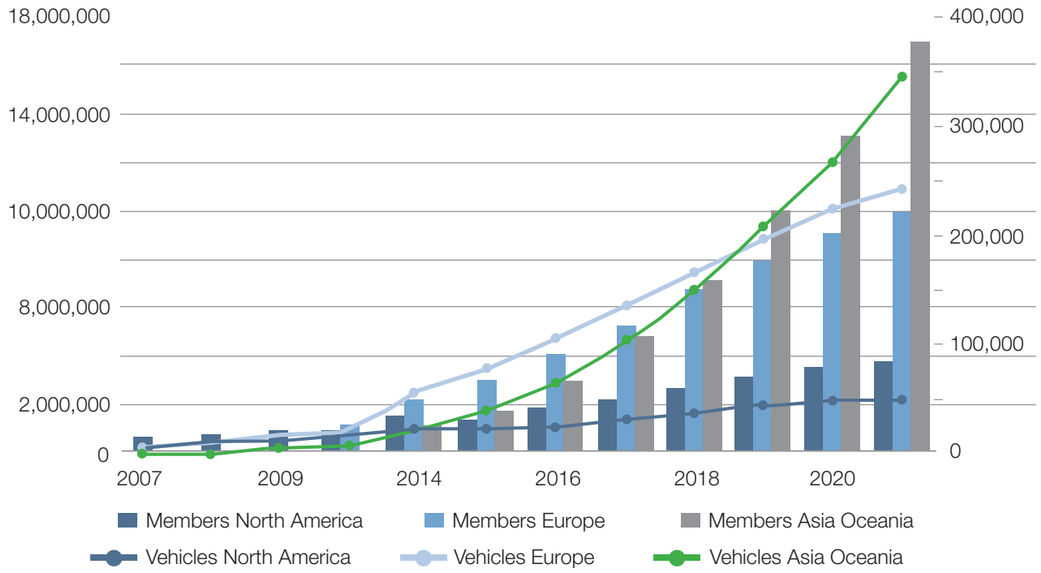
Exhibit 1b: Sharing, not growing. Worldwide forecast



*Including taxis excluding car rental

Source: The Economist (2016)

Exhibit 1c: Car sharing 2006–2014.
Historic growth and 2015–2021 projections in three regional markets



Source: Deutsche Bank (April 18, 2016)

CONCLUSION

Customers already use the (mobile) internet as a transaction medium for car purchases

Customers think in budgets and seek for multi-modality

II Innovative disruptors are redefining the traditional business models and creating new markets!

While online channels have increasingly penetrated the processes of automotive sales and after sales, this has also led to tumbling of entry barriers, with non-traditional entrants increasingly competing across new business models and related revenue pools. Fintech companies, which offer the customer various services along the automotive customer journey, are especially challenging the OEM's value chain. These fintechs are like little speedboats circling the big OEM tanker, nibbling turnover opportunities from the most profitable areas such as financing / leasing or after sales. Exhibit 2), taking BMW Germany as an example, points out that multiple competitors are already attacking targeted niches in challenging existing business models of the OEM. Along BMW's entire value chain, these fintechs are actively pursuing market share growth, catapulted by their pro-customer transparent and customized products and services, besides tailored financial offers.

The threat from fintechs to the traditional players – including OEMs, dealers and captives – is specifically driven by their core competency of owning customer touchpoints. Comparative websites like FinanceScout24 or Carwow, with their state-of-the-art online customer experience and information, are particularly successful in breaching the direct relationship of these traditional players with the customer. The previously asset-centric approach of OEMs is therefore clearly under strong pressure, as new entrants push for a largely service and online-experience oriented sales approach.

Exhibit 2: The OEM is challenged by disruptors

Source: Company webpage and competitive environment

CONCLUSION

Fintechs are especially focused on the highly profitable aspects of the value chain such as financing, leasing as well as after sales and repair.

Captives can use the technical and data-driven process knowledge of fintechs to their advantage by teaming up with them. This can be accomplished by contracting, cooperating or partial / full integration into the existing organization. In this regard fintechs could function like a supplier.

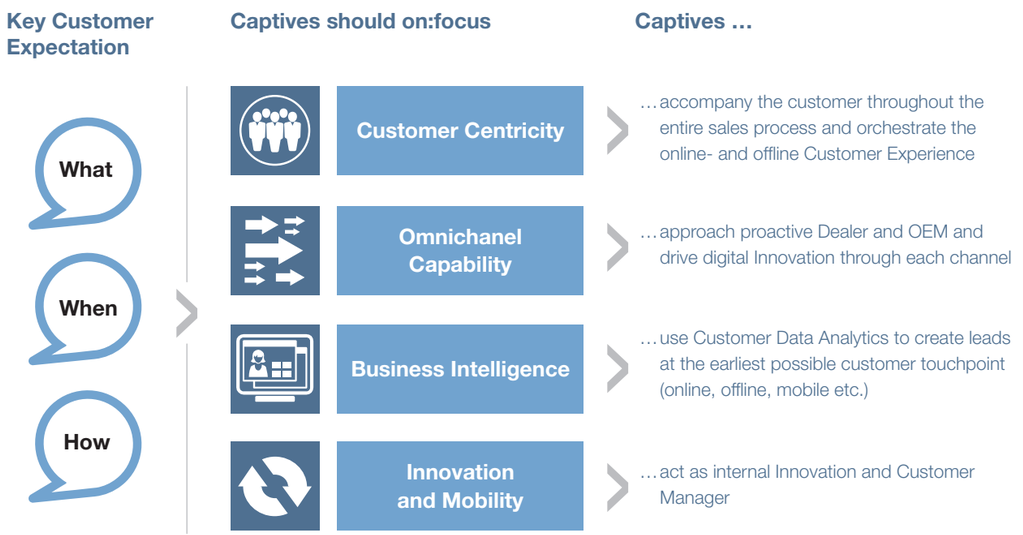
III The role of the captives is rapidly evolving!

The big automotive change drivers in the past few years – digitalization and changing customer behavior – will continue to remain the biggest threats for captives over the next years. If the captives want to continue their success story and sustain, they will need to rethink their traditional business models and be open for a digitally-driven transformation to target the "new" point of sale – the internet. A purely reactive sales support role at the dealership will not work in the future.

What could be the strategic role for the captive of the future, especially in a digital world? With their core competencies in customer centricity as well as data analytics, the captives are well equipped to orchestrate information, products and services along the entire digital customer journey (see exhibit 3).

Other retail industries such as music, books and the entire holiday industry have shown that pricing is the major differentiator in the digital world. If this also holds true for the automotive industry, the importance of financing/leasing will be even more pronounced in the future, for both – the OEM as well as for the dealer – to survive in a cost sensitive environment. Owning the customer touchpoint and offering attractive financial offers tailored to the customer needs should hence be the core role of the captive. Towards this, analyzing the online as well as offline data, which the customer is willing to share throughout the entire journey, is key for the captive to offer the right product or service at the right time via the right channel.

Exhibit 3: The role of the captives



Source: GICF

The emergence of new mobility concepts like car sharing, ride-hailing as well as multi-mode transportation, coupled with an overarching change in customer preferences throughout the entire customer lifetime, gives captives a new play area. At each stage of the customer lifetime, the demand for mobility might be different. At some stages the customer might still want to own a car, while at others he might just want to have access to a vehicle or other mode of transportation. Understanding the specific customer demand and offering tailored mobility solutions is one of the most important competencies that captives have to further strengthen in the future, in a move towards positioning themselves as mobility providers or aggregators.

CONCLUSION

The customer is on the internet and has to be guided along the entire automotive and mobility customer journey.

This is primarily the task of the captive, because it is predestined by its comprehensive service experience.

Captives should lead the process of customer experience.

IV Car sales changes from a stationary point-of-sale to a mobile first experience!

Car sales no longer have pre-determined points of sale. The sales process, across all the phases – information gathering, consideration, purchase and customer care – is now increasingly moving online (see exhibit 4). While this doesn`t necessarily mean that car dealers will disappear overnight, the need for change is dramatic.

It is important for the OEM, dealer and captive to act as one cohesive unit towards creating a consistent and comprehensive online customer journey. They need to record all channels from the very beginning, in an attempt to “fetch” the customers on the Internet by means of efficient and effective lead management.

Exhibit 4: Automotive sales have a potential to be successfully driven via the Internet

Customer

2014 ·····➤ 2018
US$ 204b **US$ 626b**

Consumer spending via mobile will incease from **US$ 204b in 2014** to **US$ 626b in 2018**. Almost half of all e-commerce sales will be from **m-commerce.**

Business are **failing** to use approximately **80%** of **costumer data** now generated

Challenges for Sales…

- Enterprises and individuals who can seize the opportunities offered by digital advances stand to gain significantly, while those who cannot may lose everything.
- Digital transformation is changing business models including revenue models
- Declining PC usage and increasing mobile device adoption is driving a “mobile first” world
- Digital transformation and a proliferation of data are fundamentally changing the relationship between businesses and their customers

Source: Siwicki (2014); Goldman Sachs Research estimates (2014); Schultz (2013)

CONCLUSION

Automotive sales changes from a stationary point-of-sale to a (mobile first) internet experience

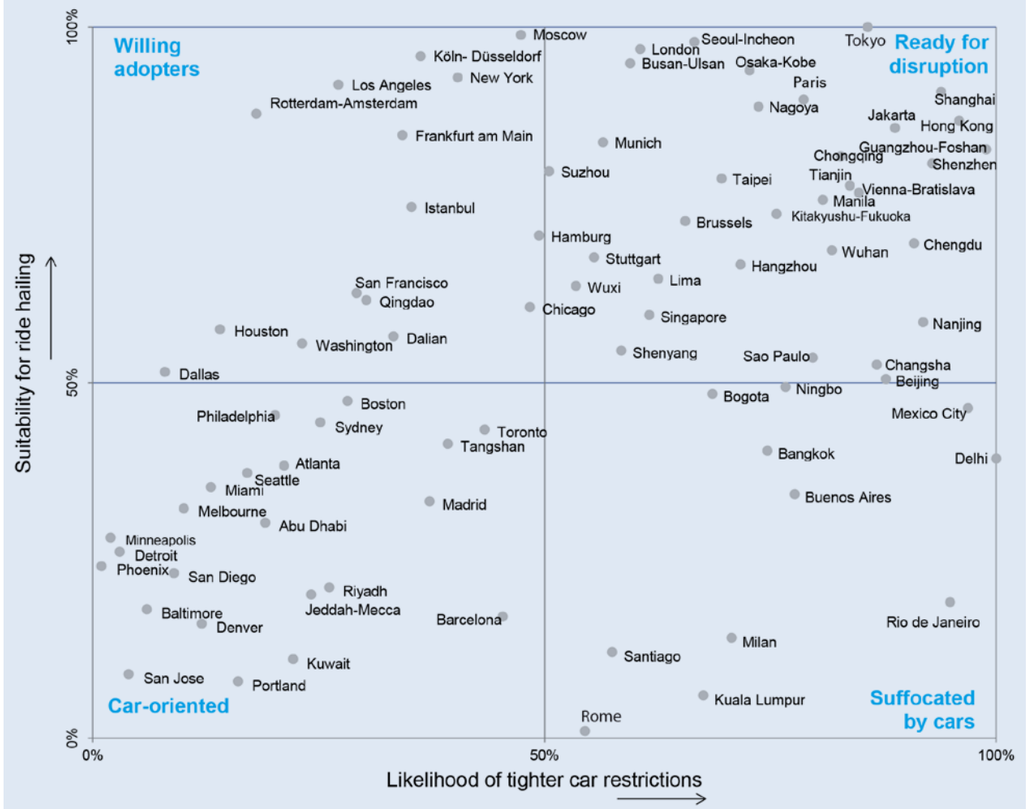
V Cities – the emerging game changer in the mobility ecosystem!

Over 54% of the world´s population lives in cities, which is expected to further rise to 67% by 2050; urbanization exceeds 80% in OECD countries. Government as well as city officials are facing a set of challenges when it comes to ensuring the fundamental need of urban living: getting from A to B.

Four basic challenges require addressing in an urban living ecosystem: The primary concerns of a city’s transport policy are to make the city as attractive as possible, to reduce the congestion time and to streamline vehicle parking. Finally, yet importantly, the reduction of emissions is a burning issue, with large legal and regulatory implications, and possibly even sanctions for certain vehicle types.

Solving the mobility challenge will require bold, aligned actions from the private and public sector. New technologies and commercialization, intelligent policies, business-model innovation and financing are necessary to realize mobility efficiencies, while in parallel creating a sustainable environment in cities.

Exhibit 5: Push and pull factors determine which cities are likely to experience the greatest disruption in terms of ride hailing



Source: Goldman Sachs (May 23, 2017)

How can cities meet these challenges? Penalties and extensive pricing can strictly limit the cars on the road. On the other hand, incentives for new mobility concepts can be introduced. In order to stay relevant and participate, OEMs for example have to support the development of intelligent transportation systems embedded in traffic lights, car parks, toll-booths communicating with vehicles to reduce congestion, improve safety, relieve public budgets and raise effective utilization.

New multimodal mobility services – combining public transport, car/bike sharing and individually-owned vehicles – are the next logical step in a move towards efficient urban mobility. Cities and OEMs have common interests calling for cross-sector cooperation.

Goldman Sachs derived change drivers for cities' mobility systems and divided them into push and pull factors. Push factors (likelihood of tighter private car restrictions) are high pollution, high traffic and good public transport. Pull factors (suitability for ride hailing) are wealth, low car ownership and low car utilization. Push factors discourage private car use and pull factors encourage alternative mobility concepts. In the next step, the worldwide top 100 cities by absolute GDP (Gross Domestic Product) are selected. These 100 cities constitute 12% of the world's population but 44% of its wealth. These 100 cities were then clustered as shown in exhibit 5 (although regulation as a core issue was left out of this analysis to enable cleaner quantitative comparisons among cities). As per the findings, the European cities that are ready for disruption / willing adopters are: Paris, London, Brussels, Munich, Stuttgart, Hamburg, Moscow, Köln-Düsseldorf, Frankfurt, Vienna-Bratislava and Rotterdam-Amsterdam.

CONCLUSION

Cities, on the back of growing urbanization and regulatory push, will be active drivers of mobility in the near future.

Captives could help by connecting with cities and targeting them as a new customer segment, towards tailoring multi-modal mobility concepts.

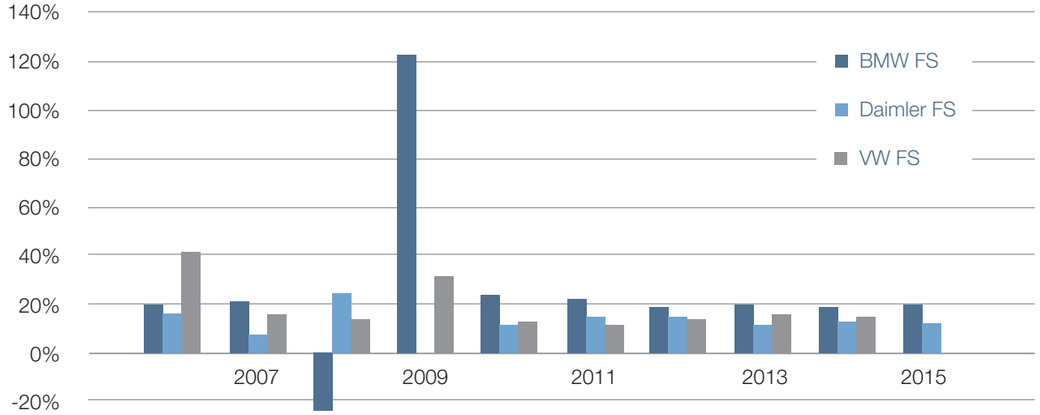
VI Tomorrow is today – Captives as a clear differentiator in the bread & butter business of automobile sales!

Captives add value in terms of

1. **Stabilizing earnings contribution:** The captive banks of the OEMs have supported revenue growth in the past, and will stay critical to securing growth in the future, as most cars depend on financing or leasing products in some manner.

   The strongly cyclical automotive business can be smoothed out by the stable earnings contribution of the captives through a whole variety of financial services products. As pointed out in exhibit 6a) the captive industry contributes to approximately 1/5th of the OEM's operating profit. With a stable earnings contribution from the captives, the OEMs can diversify the profit risk within the group.

Exhibit 6a: Financial Services EBIT as % of group



Source: Deutsche Bank (April 18, 2016)

2. **Advantages in equipment, turnover and brand loyalty:** Based on the experience in Germany one can see in exhibit 6b–6d) that the stable earnings contribution comes with three additional advantages for the OEM:

   - **Equipment:** Compared to the cash payer the captive customer is much more likely to choose a better equipped car (see exhibit 6b).
   - **Turnover:** The length of ownership is 5.9 years in the case of cash payers compared to 4.4 years for captive customers – this implies a quicker car turnover by 25% (see exhibit 6c).
   - **Brand loyalty:** The brand loyalty of captive customers exceeds the brand loyalty of independent financial services providers significantly (see exhibit 6d).

Exhibit 6d) points out that in mature markets like Germany, captives create a higher brand loyalty in comparison to independent financial services provider. Especially the introduction of bundled products with leasing, insurance and additional services or maintenance features via the captive helped the OEM to achieve a higher customer loyalty. Nowadays, customer data analytics and the handling of big data are the focus areas when it comes to create a higher customer loyalty over the entire customer life-time in the automotive industry.

While the captives continue to provide sales support through financing and leasing products, they can still achieve a very good margin as highlighted by the financial figures.

The challenge for captives is now to allocate some of these profits as investment into strategically important business and IT areas. Growth potential can be seen especially in the areas of inspection/maintenance, warranty extension, mobility/panel service, car insurance and fleet management. The fleet management business particularly helps captives in diversifying their client portfolio from pure retail to small and medium enterprise or even large corporate businesses. Investing in these areas can help secure long-term growth for the captives and their brand partner in the new and digital world.

CONCLUSION

Clearly, the big four technology companies are experts in customer loyalty whereas the OEMs and captives still have to enhance their capabilities in this area.

As the captives are at the forefront of customer interaction during the sales process, they have to pay a great attention in focusing their IT investments into analytics and data management, as these are key levers towards creating strong customer loyalty for the OEM brand.

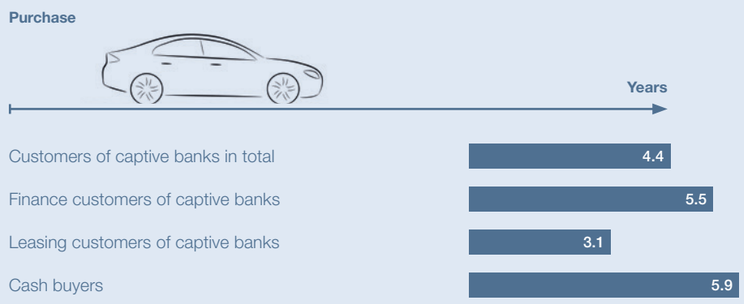
Exhibit 6b: Better equipment

On the basis of the finance offer, did you decide ...

Source: AKA (2016)

Exhibit 6c: Quicker turnover

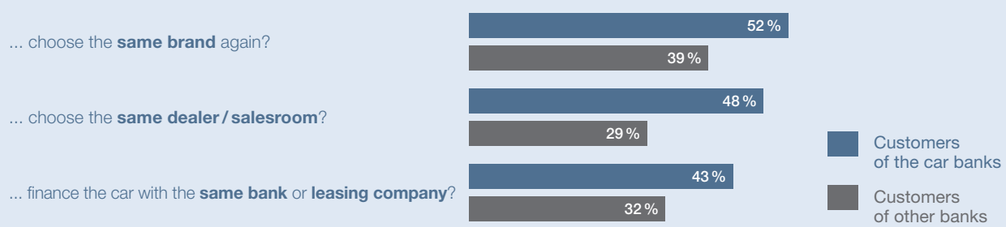
How long did you have your previous vehicle?



Source: AKA (2016)

Exhibit 6d: Brand loyalty

If you had to replace your present car, how certain is it that you would ...



Source: AKA (2016)

VII Customer journey and customer data analytics – the key success factor in a digitalized world!

The car sales process has been transformed into an online-first experience for the customer especially from an OEM perspective. As car financing is crucial in the decision-making process for the customer the challenge for the automotive finance industry is to create a seamless online customer journey starting from information and consideration and resulting in an end-to-end purchasing process (see exhibit 7). A high degree of IT integration with OEM and dealers as well as data analytics capabilities are required to support the online sales process with attractive financing or leasing offerings including additional services. The long-term goal is to digitize the entire process – from account opening to insurance. Imaginable is an electronic information book which informs the user permanently about his "total cost of mobility". They understand eg. their fuel costs and their monthly total costs for the use of their car including insurance and tax. Furthermore, a usage based billing is conceivable (pay as you drive (PAYD)). The cars are fully equipped and the software is on-demand. Depending on the preference, individual elements can be booked. For example, four-wheel drive or more horsepower can be added.

The used car market has already been exploited by independent marketplaces and consumer lenders. The race is now on in the new car market especially for the captives. They are forced to revisit their customer experience strategies in a digitized world to provide an omni-channel purchasing and financing one stop shopping experience. Real-time trade-in valuation, financing and leasing offerings, online credit decision and approval are only some features, which are required to create a new automotive finance customer journey. External regulation, consumer and data protection laws and real-time data availability are only some of the external challenges the captives have to deal with in order to be successful in the near future.

Exhibit 7: A look at the automotive finance customer journey

Get information about financial service **Calculate** finance based on vehicle configuration	**Information**
Compare available financial offers	**Consideration**
Contact customer services to answer possible questions **Receive** a binding offer **Obtain** financial application approval	**Contact**
Sign contract and document **Obtain** account opening statement **Receive** the car and the service **Get** the first invoice **Make** the payment	**Purchase**
Change contract terms by needs **Get** midterm information **Obtain** support from customer service **Be assisted** with payments & claims **Make** a complaint **Make** an unexpected termination	**Service**
Obtain offers to optimize my current contract of car and service **Receive** recognition for customer value **Advise me** on next steps **Return** the car and hand-over the vehicle title **Make** the end-term payment **Obtain** new/bridging offer **Sign** the new contract	**Retention**

Source: GICF

CONCLUSION

The fact that legacy IT systems are still being used in car sales and by OEMs is an obstacle to the complete digitalization of the customer journey.

To eliminate this malady more than just interface programming is needed. Automotive customer engagement solutions are needed for better orchestration throughout the automotive and mobility lifecycle.

VIII Current trends in mobility!

Cities are already rapidly moving away from differentiating public and private transport as two separate businesses, towards a more integrated multi-modal mobility network. Main drivers of change are demographics, customer preferences and technology.

Mobility app providers offer seamless door-to-door mobility, combined with improved service levels and customer choices to their users, and are an answer to multiple existing challenges. Exhibit 8 categorizes these answers into parking, charging, ride hailing, car sharing and multimodal services. The following apps are currently dominating in each of these fields:

1. Parking (search, book and pay):

The market is currently fragmented. There is a high startup activity and no dominant technology leader has emerged. Cities are increasingly interested in developing their own business model based on parking spaces. Cooperation with the respective city is required and makes potential growth complicated. The market can be classified as a venture capital market.

2. Charging (book and pay):

The players are
- provider of their own charging infrastructure
- OEMs who own a charging infrastructure
- mapping service providers who display the location of charging stations. The infrastructure market for electric cars is supposed to grow annually by 27% by the end of 2021 (Source: EY, 2017).

The market can be classified as an IPO market.

3. Ride hailing (book and pay):

The worldwide market for ride-hailing, ie. the ordering of a vehicle via on-demand app, is dominated by UBER. The market is currently in a phase of consolidation. The market can be classified as an M&A market.

4. Car sharing (search, book and pay):

The car-sharing market is dominated by Zipcar and Enterprise in the US. In Europe the market is fragmented at country level. The market is experiencing strong competition from the providers of ride-hailing services. There are different business models: one-way and round-trip as well as station-based and free-floating. The market can be classified as an M&A market.

5. Multimodal services:

No global player has yet been established. The market is currently characterized by various subscription and payment models. Three key drivers for the success of a business model are core:
- the number of integrated partners and services within their own platform
- the technological fit to the local access infrastructure
- the number of competitors offering similar or even free services. Whoever will win the race in this market has the potential to be the next three digit billion company.

The market can be classified as early stage.

Exhibit 8: Parking, charging, ride hailing, car sharing and multimodal services – An overview

	Definition	Answer for …
1. Parking	On-demand information including reservation and billing function for parking as well as peer-to-peer parking space sharing	• increasing urbanization • Limited availability of parking space
2. Charging	Providing EV infrastructure enabling customers to search, reserve, and pay for the nearest charging station available.	• Rising number of e-vehicle • Current limited number of charging station and range of e-vehicle
3. Ride Hailing	On-demand or prearranged transportation service connecting drivers with passengers	• Customers are willing to participate in shared mobility services while monetizing their owned car effective and efficient travelling
4. Car Sharing	On-demand or planned car-based mobility without the customer owning the physical asset	• Low utilization of vehicles • Increased sharing economy
5. Multimodal Services	Journey planner or enabler that helps passengers find, book and pay the preferred transportation means and route	• Optimizing trip routes involving different travel modes including payment on ONE interface

Source: GICF

CONCLUSION

Mobile apps have driven ride hailing and ride sharing to successful business models. The next big thing will be in multimodal business models.

IX Data is the fuel of the automotive future!

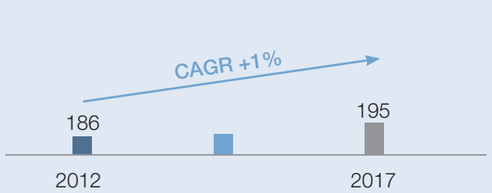
The digital economy is growing exponentially, driven by connectivity and analytical computing power and has already redefined the world into a smart and connected ecosystem. Many industries, such as telco, retail, travel or banking, have witnessed instances of companies capturing and leveraging the customer data through connected devices to develop new offerings and services, in driving greater customer loyalty.

The connected car, or the third living room of modern society besides home and work, is disrupting the entire automotive industry. With the enormous number of sensors built in the car, nearly everything can be monitored and analyzed in real-time, ranging from driving behavior and patterns to vehicle usage and environment conditions. This data can be used for a variety of purposes such as new product development, preventive and predictive maintenance, up- and cross-selling, and making data available to third parties. The data generated from vehicles is merely creating the unseen universe, opening up new possibilities and revenue pools.

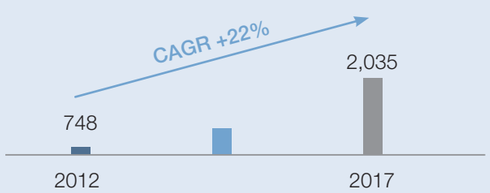
A set of technology players is boldly knocking at the door of the automotive industry to grab the lion's share of the potential revenue streams. For example Apple's R&D expenses for „car/services" between 2013 – 2015 summed up to $4.7bn. This is based on the trend that the volume of data generated annually grew exponentially in the last few years – while in 2005, this was 130 exabytes = billion gigabytes, it skyrocketed 10 years later to 8,591 exabytes. The growth until 2020 is supposed to be 366%, reaching 40,026 exabytes.

Exhibit 9a:
The big 3 OEMs versus the big 4 tech companies – A capital markets perspective

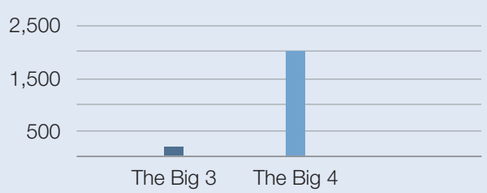
Market cap of the "Big 3 OEMs" in Germany – Today and 5 years ago (in €bn)



Market cap of the "Big 4 Tech Companies" in the US – Today and 5 years ago (in €bn)



Ratio of the big 3 and the big 4 today

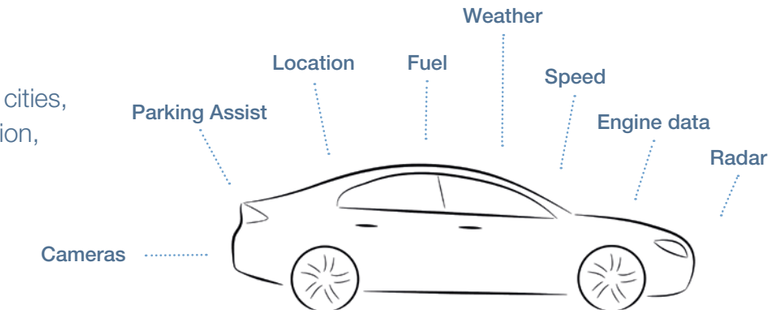


Ratio of the big 3 and the big 4 today and 5 years ago

	2012	2017
Big 3 OEM	20%	9%
Big 4 Tech	80%	91%

Source: GICF, as of 16.9.2017

Exhibit 9b: "Data out" to cities, government/ transportation, insurance companies



Source: White Clarke Group (2016)

What do the capital markets say? Who is well equipped for the future challenges? Exhibit 9a gives a clear message. Today's market cap of the big 4 tech companies is about 10 times higher than the market cap of the big 3 German OEMs. Five years ago the ratio was 1:4. If we extend the time frame the trend does not change.

If data is the fuel of the automotive future, one can push this idea even further towards the concept of 0€car (based on: White Clarke Group (2016)). This concept argues that all data has value and looks at the car as a means of producing data through a large number of already embedded sensors – radar, cameras and parking assists.

As stated earlier, the data can be produced across multiple dimensions such as those pertaining to location, fuel, weather, speed, engine performance etc. (see exhibition 9b). The question is how to monetize this data.

- **Data out:** Assume a car buyer sells various data to cities, government/transportation, insurance companies and weather services.
- **Data in:** In a next step the customer can accept data in. This implies that for example McDonalds will inform a customer at noon that they can leave the motorway in 2.5 kilometers and get a decent meal for €9.99 including a free refill.

Data out and data in will lower the actual purchase price of the car. While such a scenario is especially favorable for the big tech companies who have a strong competency in data-monetization business models, it is a significant threat for the OEMs. At present there is a trend in science to base empirical analysis no longer predominantly on samples, but on large data sets. Research institutes are also ready to pay for this big data. Should this trend continue it would also be conceivable that e.g. weather stations are willing to pay for a more accurate data base.

CONCLUSION

The OEM faces significant competition from tech companies which have deep customer understanding and insight.

The OEMs need to play their asset – the captives that already understand the client well – and enable the technology-based competencies in order to challenge tech companies that are already in lead.

X OEMs' corporate finance strategy in the context of future mobility!

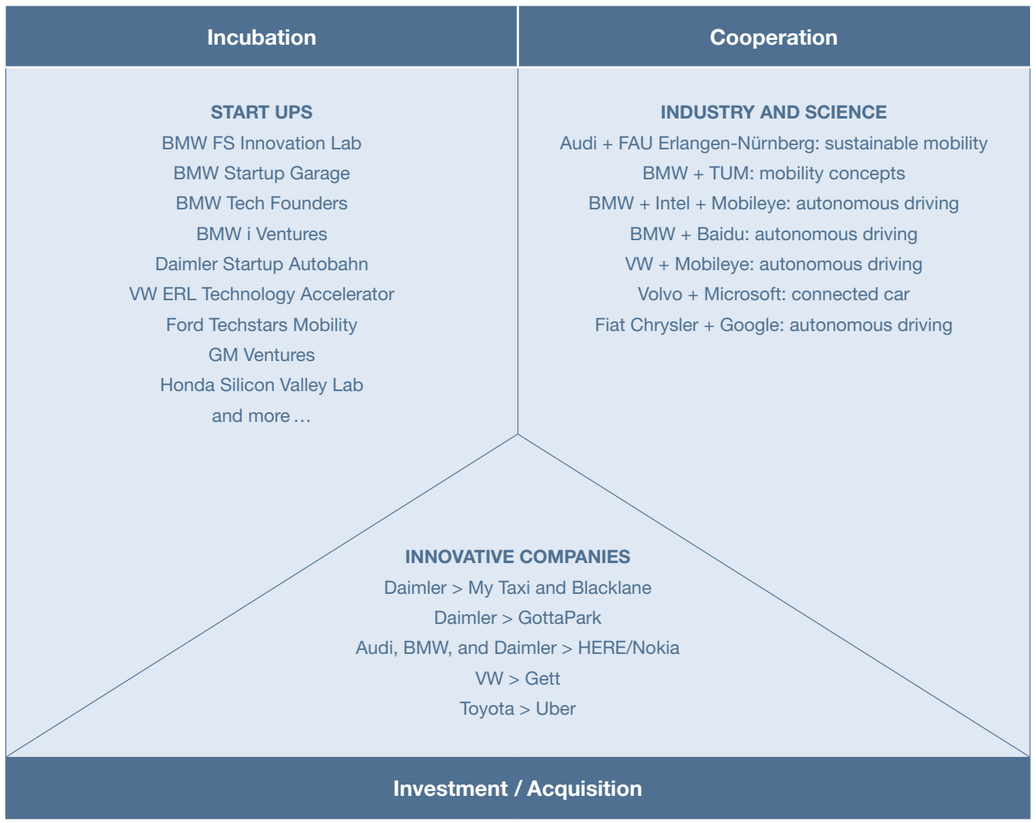
The challenges in the new mobility sector and the consequent paradigm shifts lead us to an important question: Automotive (finance) strategy – quo vadis? The guiding principle for OEMs can be summed up as follows: *"Embrace the disruptive innovation potential through smart investment and ecosystem collaboration."*

From a corporate finance perspective, there are different routes for investments or ecosystem collaboration: M&A, IPO, delisting, joint ventures, strategic alliances, equity partnership, licensing, franchising alliances, network alliances, incubation and cooperation.

Exhibit 10 shows recent corporate finance activities of OEMs in the context of new mobility. In this figure, classical tools such as M&A (investment/acquisition) as well as modern corporate finance tools such as incubation and cooperation are taken into consideration.

We can conclude that the challenges are being embraced by the industry and the consequent strategies are in the right direction. The OEMs are actively strengthening their innovation capabilities through different means, driving a shift in their existing business models to prepare for the future of mobility.

Exhibit 10: OEMs corporate finance strategy



Source: EY (2016)

CONCLUSION

Incubation can be an important strategy for OEMs, especially in the development of mobility services, to keep pace with the innovation speed of fintechs

For the future topic of connected car, the preferable solution is to cooperate with other industries

New business models in the area of mobility services are primarily developed through investments or acquisitions

XI Who will be the Amazon / Google / Apple & Facebook in mobility in 2030?

Based on the analysis above, the future of mobility looks to be thrilling, especially for customers. Technological convergence, new entrants in the mobility space, and changing travel behaviors are the cornerstones disrupting the mobility industry. The resultant enormous changes will allow people to travel more efficiently, more cheaply and more often, using the whole variety of transportation modes. However, this will translate into unprecedented future challenges for the automotive industry. In-house development, collaboration with or integration of mobility providers, technology and data companies, and an open ecosystem for sharing real-time data, are some of the major shifts that the industry will need to make in order to sustain. Who will be the winner in this race? There is only ONE Google, Apple, Facebook and Amazon. They are already the winners in their respective sectors. Further, they have already achieved a good starting position in the mobility warfare. With their market cap and their huge cash position, they can easily buy instead of build. If the big four tech companies want to penetrate the mobility market they can buy-in (10times higher market cap compared to the big three German OEMs)

a) using shares as acquisition currency,
b) using their giant cash treasure,
c) pay with options or
d) any combination of the three – as was the case in the Facebook Whatsapp deal.

Within the next decade, the winner in the new mobility world will emerge and like in other industries – it is likely that the winner will take it all.

Since individual consumers will remain at the center of this new mobility evolution, in terms of their openness to adopt for example electric and autonomous technologies and to share vehicles and rides, the customer centric business model of the captives will be a vital lever for the future success of the manufacturer.

As data, and not hardware, will help enter the winning lane, the captives will need to fundamentally change their strategies in a bid to transform into a data-centric organization. We are already in the middle of the race for on-demand multi-modal mobility. If the OEMs do not want to wake up facing the nightmare of having become a tier one supplier of hardware in the new mobility ecosystem, they should take advantage of their captives.

CONCLUSION

The OEMs, captives and car dealers need to change the engineering driven perspective, put the client into the center of their strategy via the captive, learn about data management and combine data analytics with their top-notch manufacturing competency.

The captive should take the lead in this transformation process. The race is on!

XII Captives are best placed

Captives are best placed today because:

- they best understand long-term customer relationship management based on their business model with a generic portfolio (long-term) view of the customer interaction
- they generate loyalty to the OEM as evidenced by high loyalty rates, higher equipment levels and shorter trade cycles
- they already offer mobility packages very successfully
- they contribute significantly to the bottom line of the OEMs business equation
- customers already think in budgets rather than purchase prices

Development areas for captives in the future:

- Captives need to understand better the digital, direct customer channel including lead management.
- Captives need to extend their mobility offerings to integrated door-to-door solutions.
- Captives could open up the dialog with cities to cooperate in the development of integrated urban mobility solutions.
- Captives could take the lead responsibility within the corporation in managing new digital mobility services.
- Captives need to acquire the technical knowledge of process digitalization and data driven customer relationship management or need to team up with fintechs.

3. APPENDIX

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Short portrait of the author

Prof. Dr. Dr. Joachim Häcker

- **Professorship:** Professor of International Finance at Munich University of Applied Science since 2010 and Adjunct Professor at the University of Louisville since 2004.
- **Transaction experience:** Joachim has worked as a corporate finance advisor since 1996. As vice-president of Rothschild in London and Frankfurt, he led numerous M&A transactions between 2000 and 2003. Joachim also holds experience from his time in M&A as an associate with Deutsche Bank (1998 – 1999) and as an analyst with PricewaterhouseCoopers (1996 – 1997).
- **Literature:** Joachim authored several books of reference and various articles about finance and automotive management.
- **GICF:** Joachim Häcker is director of the German Institute of Corporate Finance
- **Languages:** German, English, French, Spanish, Italian, Russian.
- **Hobbies:** Ironman (12x finisher); composition (piano).

Disclaimer

The present paper does not provide tax and legal analysis. For individual questions, in particular in the areas of taxation, law and auditing it is recommended that experts like accountants, lawyers and tax advisors are contacted. The statements in this paper should only be considered as indications.

The paper was written by the author to the best of his knowledge. The paper is based on expert discussions in the captive arena and publicly available information.

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German Institute of
Corporate Finance (GICF)
Neckarsteige 6–10
72622 Nürtingen
Germany
Mail: joachim.haecker@dicf.de
www.gicf.de