



Continental Mobility Study 2016

"The Connected Truck"

General conditions:

Enormous cost pressure on the industry, but little leeway for sustainable development.

Vehicles:

Greater demand for efficiency, but have all customer needs, including those extending beyond vehicles, already reached OEMs?

Automation:

Great potential for solutions, but is there still too much skepticism among users?

The role of the driver:

An oft-neglected group – and will they really soon be unnecessary?

Challenges:

Suppliers, OEMs, legislators, environmental specifications, competition, and product users – they do not all fit together yet.

Things to Keep in Mind

Selected thoughts for closer attention

Do suppliers and OEMs know the pain points of the industry well enough?

Does the industry have too little appetite for innovation or are the solutions on offer simply not yet the right ones?

Does partial automation really make sense or does it discredit the concept?

Careful consideration: should the topic of sustainability play a much greater role in ensuring future viability?

Has digitalization actually already arrived?

Is the focus on the sector too short-sighted if it is directly only at vehicles?

How much sense does automation make if the infrastructure cannot keep up?

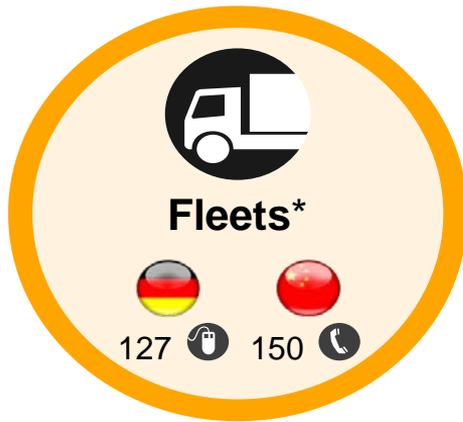
Are we optimizing only parts of a system that is not fit for the future?

Is Europe getting left behind?

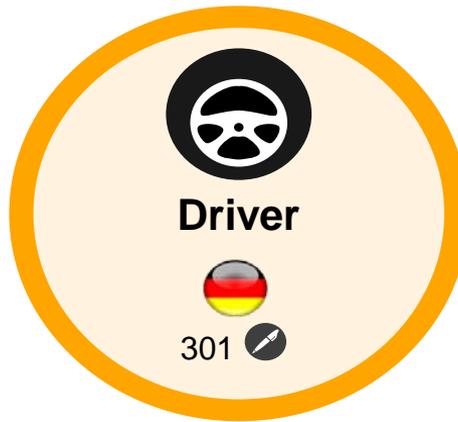
Are vehicles lower down the scale than trucks being forgotten in innovation?

Continental Mobility Study 2016

Survey among Fleets, Drivers, and Logistics Experts



April 2016



June 2016 by infas

* Fleet owners, fleet managers

Survey Overview

Modular structure with various target groups

I. Quantitative surveys:

A Logisticians, forwarding agents, fleet operators

in Germany: First and second management levels at small, medium-sized, and large companies;
3,000 people contacted by telephone; n = 127 online interviews conducted

in China: First management level at small, medium-sized, and large companies;
1,000 persons contacted by telephone; n = 150 telephone interviews conducted

B Long-haul drivers in Germany:

Drivers of commercial vehicles in weight classes of 3.5 / 7.5 / 12 / 40 metric tons; n = 301 interviews via self-completed written forms; recruitment by interviewer on site at selected rest areas across Germany; questionnaires distributed and collected with incentives for the drivers

II. Qualitative surveys:

Expert interviews via telephone with 21 managers from the areas of OEM, logisticians/forwarding agents/fleet operators, research, legislators, and associations (from western Europe – mainly Germany – and China)

April–June 2016

General Conditions



Competition for highly
trained drivers is **growing fiercer**

“Agree”, say **91%** 

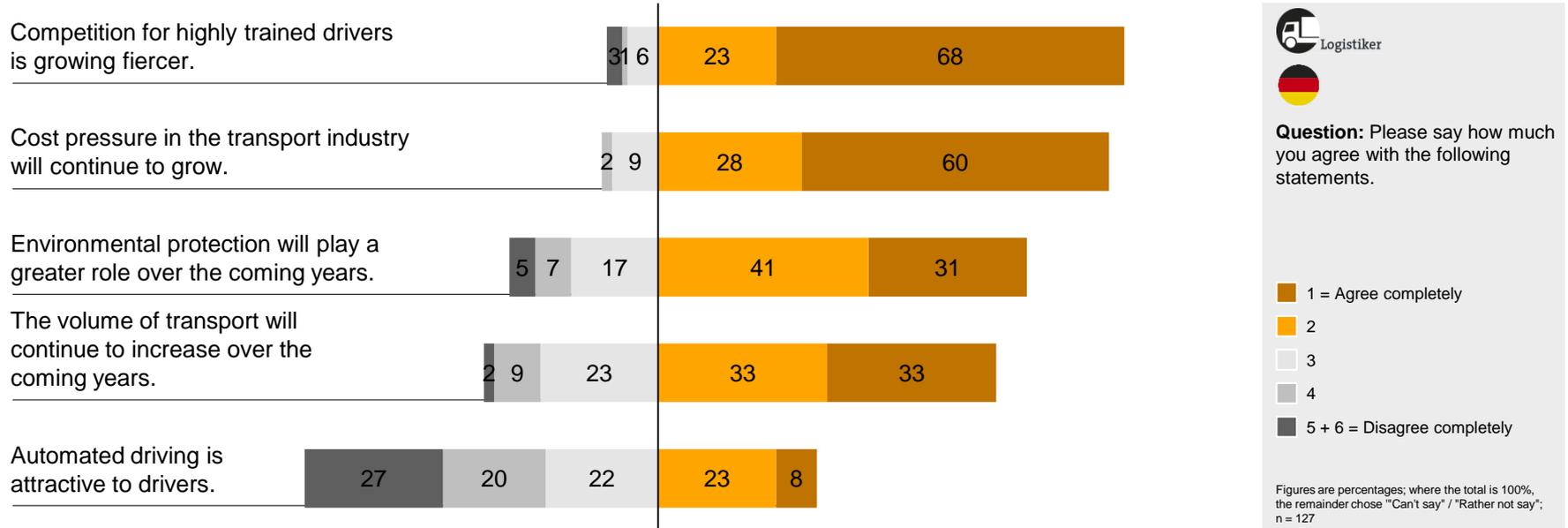
Source: Continental Mobility Study 2016

STUDENT DRIVER

STUDENT DRIVER

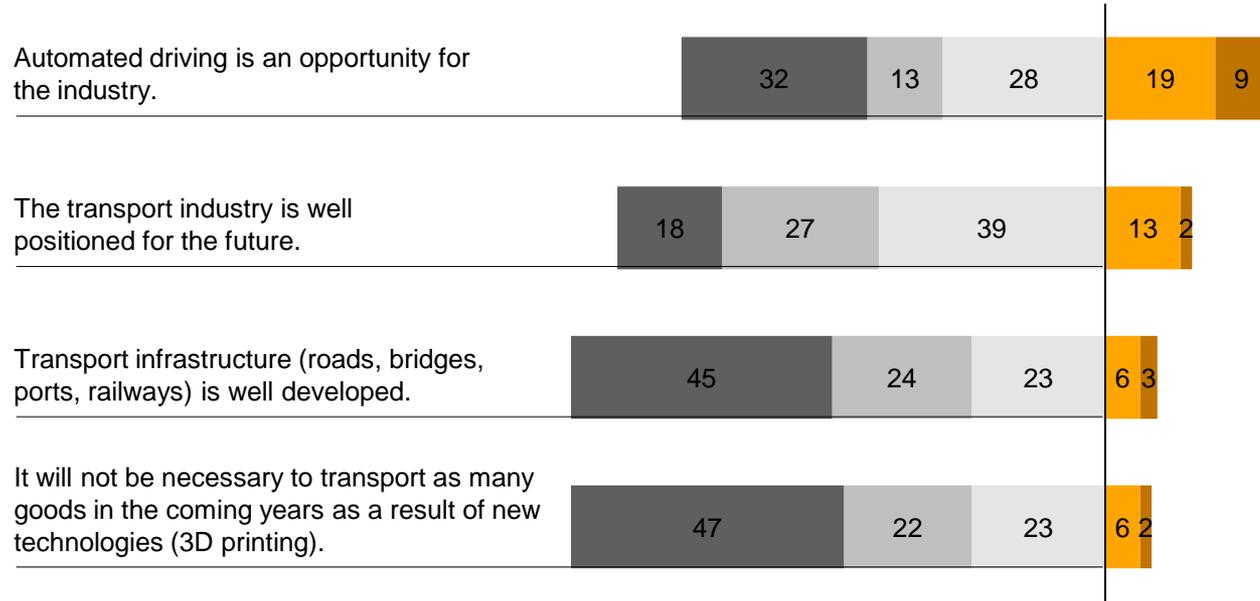
Future of the Transport Industry

More competition for drivers and rising cost pressure



Transport Industry from the Perspective of Logisticians

Automation and infrastructure judged critically



 Logistiker



Question: Please say how much you agree with the following statements.

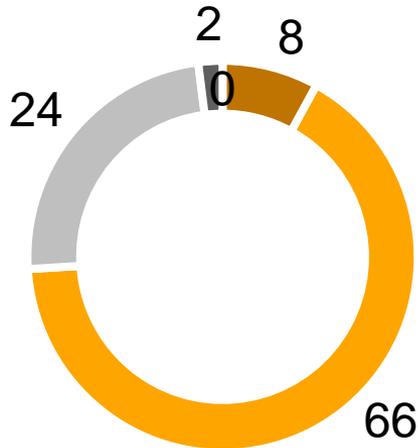
-  1 = Agree completely
-  2
-  3
-  4
-  5 + 6 = Disagree completely

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 127

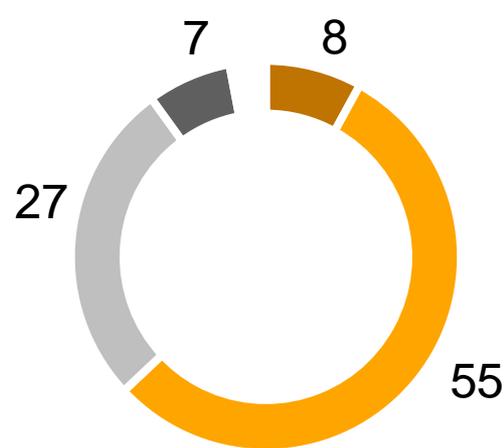
The Transport Business in the Next Ten Years

Mostly positive assessments given for own companies

› Germany



› China



 Logistiker

Question: Finally, we would like to ask: in your estimation, how will the transport business develop for your company over the next ten years?

-  Very positively
-  Somewhat positively
-  Somewhat negatively
-  Very negatively
-  Can't say / Rather not say

Figures are percentages; Germany: n = 127, China: n = 150

Logistics Market – Road Haulage



Assessments and *quotes* from the interviews with experts

- › Very **fragmented market** in western Europe. Even very large companies have only very small market shares.
- › **Significant differences in costs** within the European market (low-wage pressure from eastern Europe) and a **lack of qualified drivers** in western Europe (Germany).
- › **Market continuing to grow**, but high cost pressure and considerable transparency; many similar services on offer.



- › *"Competition in logistics is wide open. There is intense market pressure, and in this environment, it is possible to enforce standards only if you don't attempt to use standard solutions. In addition, as a global player, we have to deal with a variety of regulations and legislation. In a competitive situation of this type, being innovative is extremely important. The requirement to be "leaner and leaner" (as part of lean management) is a serious challenge! We tackle the challenges posed by the competition with innovative solutions such as our StreetScooter project, a mobility concept for cities and conurbations using electric transport."*



- › *"In the transport business, the slices of the pie are distributed and the customer dictates the price."*
- › *"Even we, at a large company, have a market share of only approximately 3% here!"*

General Conditions – Competition



Assessments and *quotes* from the interviews with experts

- › Manufacturer competition is tough with regard to **purchase prices** for trucks.
- › The competition at European level is a **competition over costs**.
- › End customers, both private and business, expect their wishes to be taken into account. That means **flexibly determining the time, place, and type of delivery**. In addition to transparency, integration of upstream and downstream processes can also be involved.
- › Logisticians want **more competition among OEMs in terms of innovation**. With regard to electric drives, some large logistics suppliers are forging their own paths, as there are no suitable solutions provided by the OEMs.



- › *"Competition? We have that every day. There are a great many new developments for the final mile. Let's talk about the alternative processing. The main aspect here is the benefit to customers. Customers want to intervene, and are already intervening in logistics. They want to dictate when their packages are delivered, where they are delivered and how, and they want the whole thing to be done efficiently."*

Vehicles

Advanced Driver Assistance Systems are highly regarded.



Reliability and user-friendliness

66% of the drivers praise reliability and user-friendliness of assistance systems

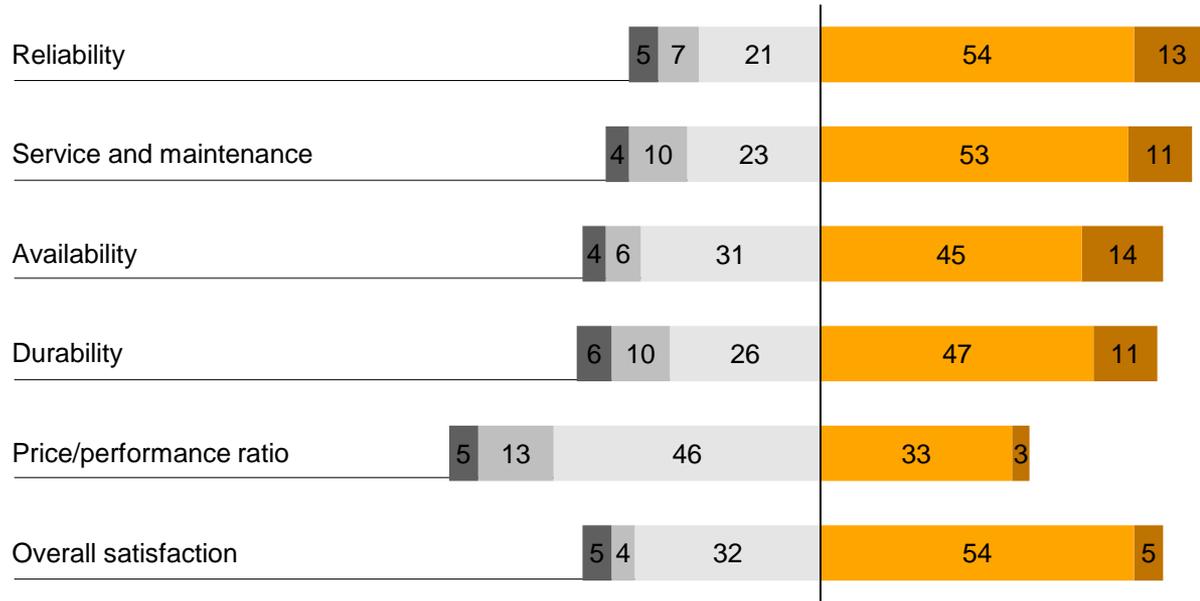
72% of highly experienced drivers want more assistance systems

Source: Continental Mobility Study 2016



Logisticians' Satisfaction with Vehicles

Indications of opportunities for improvement?



 Logistiker



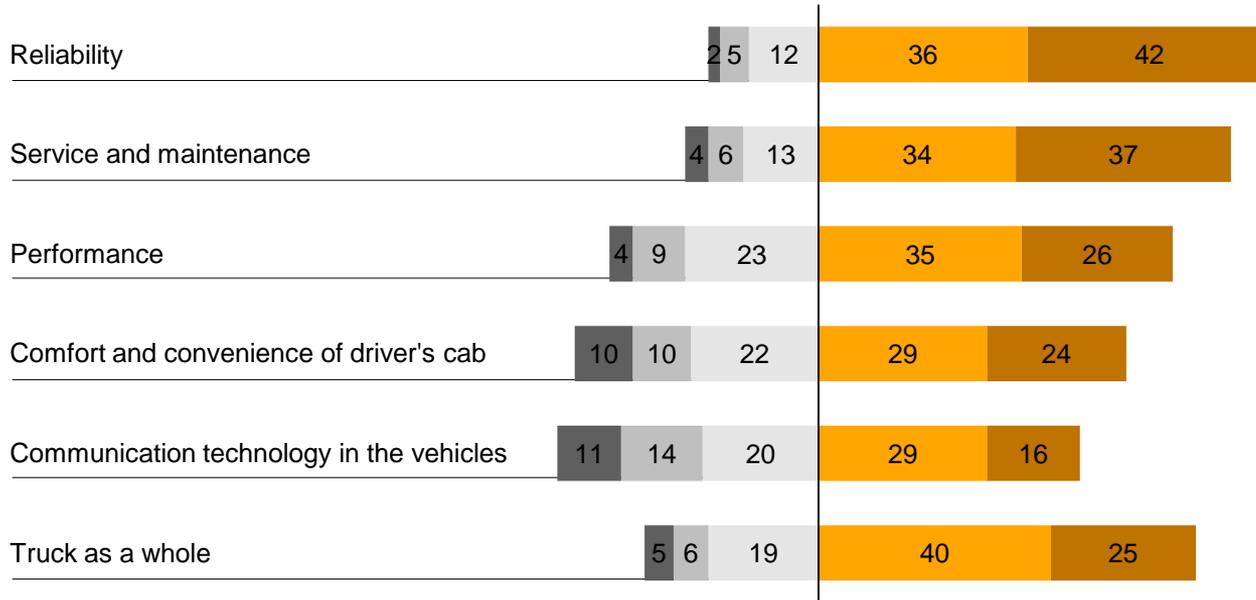
Question: How satisfied are you with the following aspects?

-  1 = Very satisfied
-  2
-  3
-  4
-  5 + 6 = Very dissatisfied

Figures are percentages; Germany: n = 127, China: n = 150

Drivers' Satisfaction with Vehicles

Reliability, service, and maintenance to the fore



Fernfahrer



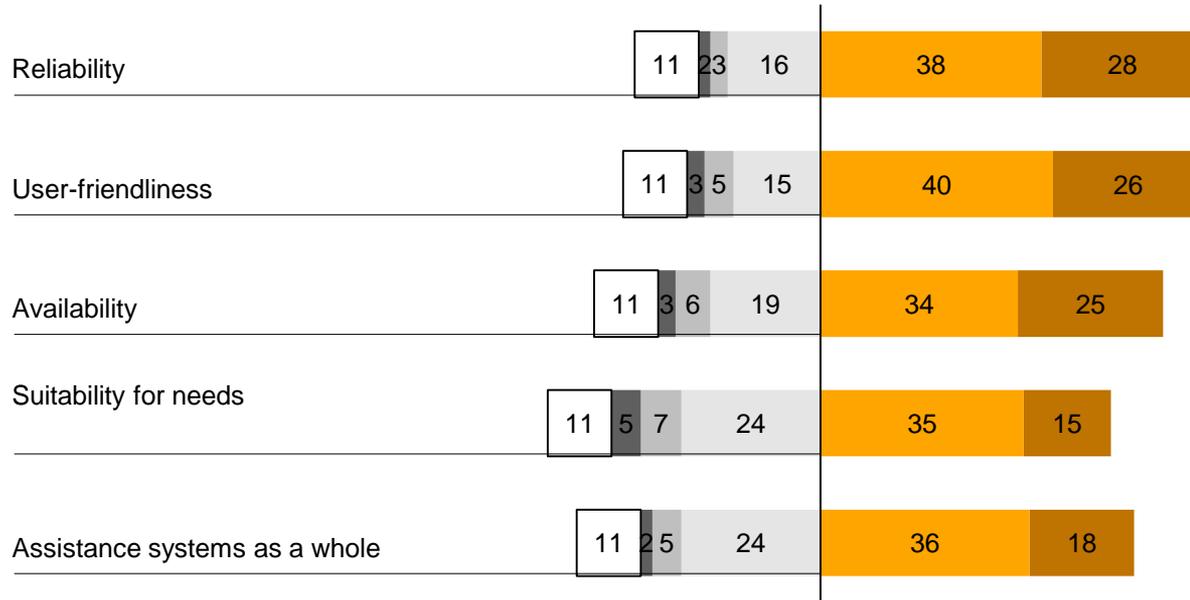
Question: How satisfied are you with the following aspects of your vehicle?

- 1 = Very satisfied
- 2
- 3
- 4
- 5 + 6 = Very dissatisfied

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Drivers' Satisfaction with Assistance Systems

When the technology is present, it is judged mainly positive



 Fernfahrer


Question: How satisfied are you with this technology (e.g. advanced driver assistance systems and automation) in terms of...?

- 1 = Very satisfied
- 2
- 3
- 4
- 5 + 6 = Very dissatisfied
- No such technology present

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"
n = 301

WE WANT
YOU!
BE OUR TRUCK
DRIVER!

APPLY
NOW!



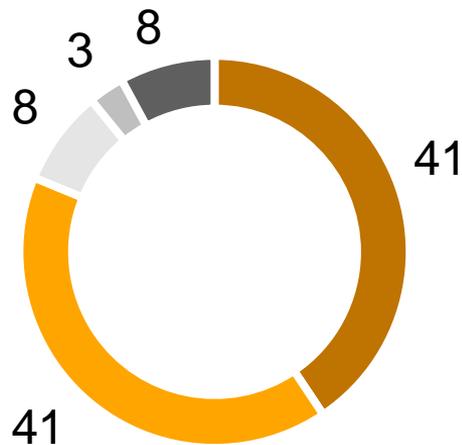
High demand
for **innovations**
- but they need to
pay off quickly



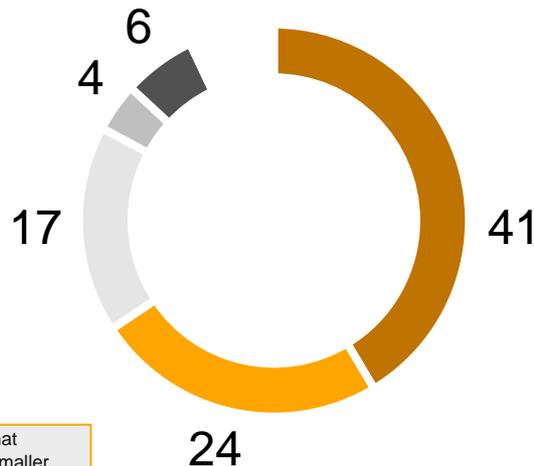
Investment in Fuel-Saving Driving

For logisticians, it needs to pay off rather quickly

› Germany



› China



The investment framework is somewhat longer-term for larger fleets than for smaller fleets. For the majority, investments need to give a good return within two years.



Logistiker



Question: Optimization of journeys and cost-saving are additional topics relating to commercial vehicles. When do investments in fuel-saving driving need to start paying off for you?

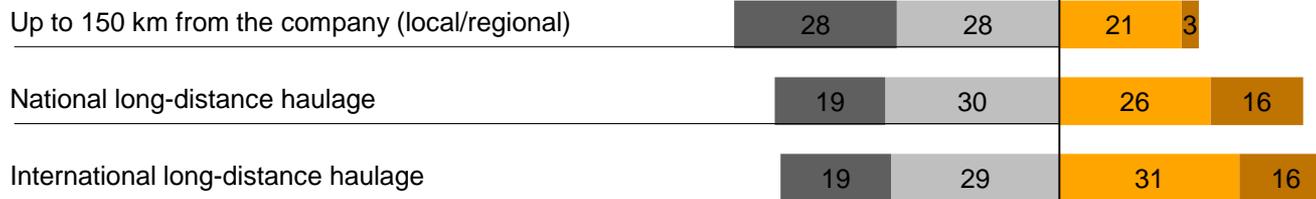
- After one year
- After two years
- After three to four years
- After five or more years
- None of the above
- Can't say / Rather not say

Figures are percentages; Germany: n = 119, China: n = 70

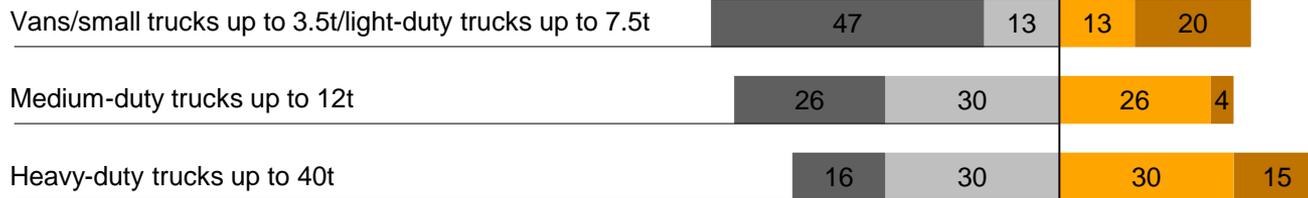
Drivers' Assessments of Fuel-Saving Behavior

Broken down by distance driven and vehicle size

Distance driven



Type of vehicle primarily used



Question: Which applies most often to your company with regard to fuel-saving behavior with your vehicles?

- Has special incentives
- Closely monitored
- Referred to occasionally
- Not a major topic for us

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Fuel-saving technologies: At the top of logisticians' wishlists

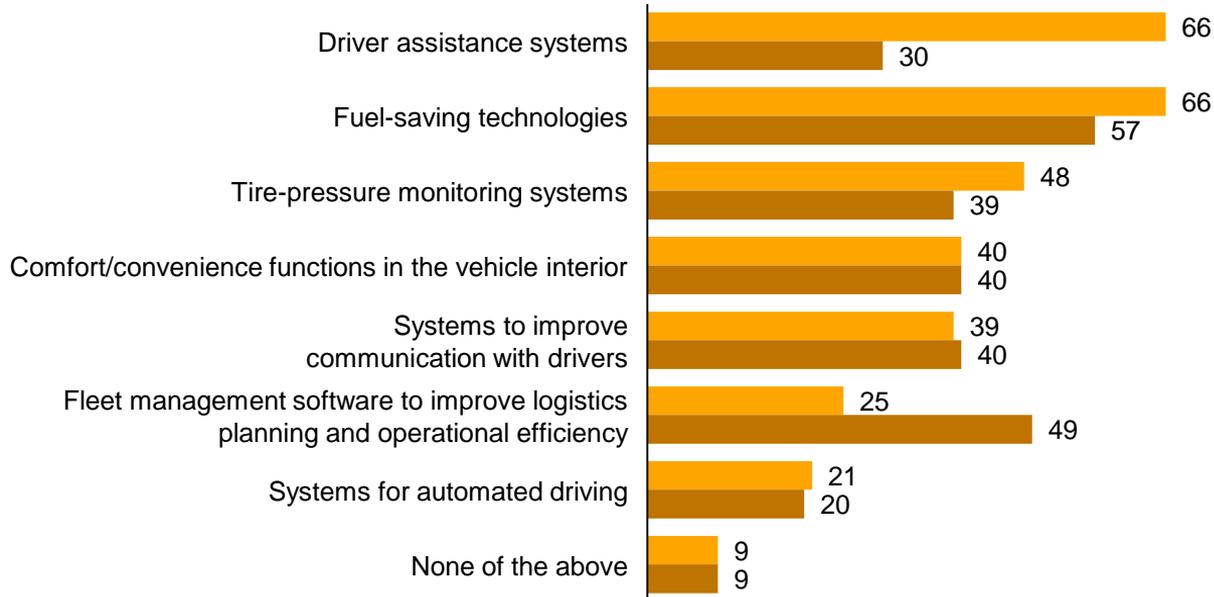


Source: Continental Mobility Study 2016



Technologies on Logisticians' Wishlists

More driver assistance in Germany, more software in China



Logistiker



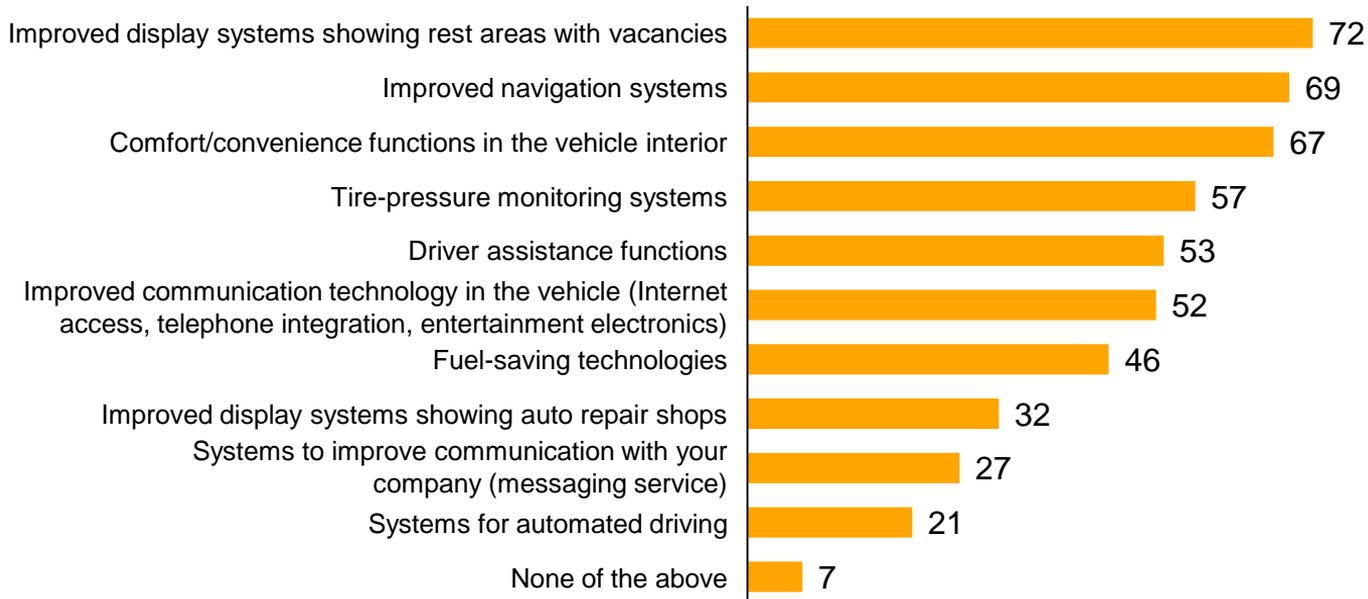
Question: Which of the following technologies are on your wishlist? Which of these would you like to have, either now or in the future?

Germany
China

Figures are percentages; multiple selections possible; Germany: n = 119, China: n = 70

Technologies on Drivers' Wishlists

Details on rest areas and Tire-pressure monitoring



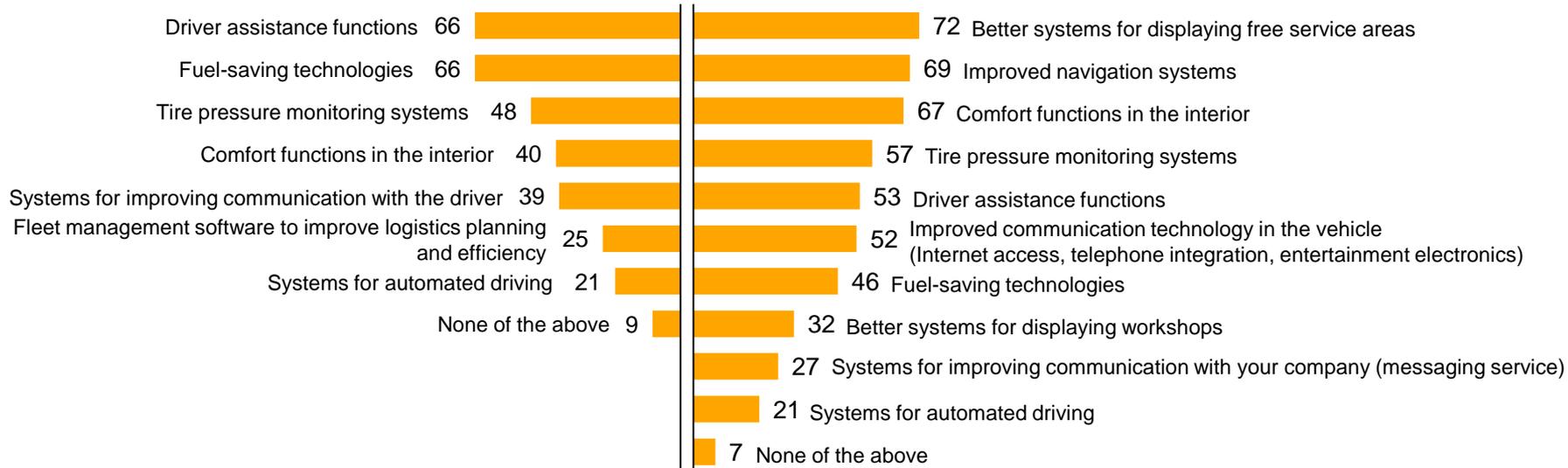
Question: Which of these would you like to have in your job as a driver, either now or in the future?

Figures are percentages; multiple selections possible; n = 301

Trucking Fleets & Innovation

Wish List of Fleets and Drivers

Fleets  Drivers 



Figures in percent; multiple answers possible, Germany: logistics specialists: n=119, long-distance drivers: n=301

Driver Assistance Functions

Quotes from logisticians and associations

Statements on examples of driver assistance and object detection



- › *Navigation systems, voice command systems, and head-up displays.
As a preliminary step, maneuvering aids with vehicle surroundings monitoring, including for the trailer (sensor solutions; this would make a lot more sense for truck operation than for passenger cars), and fully automated driving as the final step.*
- › *We make extensive use of driver assistance functions such as lane-keeping assistants and object detection. Many passenger car technologies should be available in trucks as well. The aim should be the best possible support for the driver through technology.*
- › *These systems are right at the top of the list. Not only that, but it should not be possible for the driver to deactivate them.
Safety first!*



- › *As a general rule, I would say that everything that is technologically possible and available in passenger cars should be possible and available in trucks as well.
From radar to automated brake functions.
Everything that improves road safety.*



- › *Already standard to some extent, and not on the wishlist but on the "to do" list.*

Systems for Automated Driving

Quotes from interviews with experts



- › *With regard to automated driving, the expert believes that all legal questions are as yet unresolved. There also needs to be public debate over any ethical issues that may arise (if the truck has to swerve and injuring a person is unavoidable, whom should it run over – the pensioner or the young mother?). The expert thinks that sensible solutions for automated driving are more likely to come from manufacturers working in public transport, using driverless systems such as in the subway infrastructure, or operating within similar networks.*



- › *For the Ministry, yes; for the experts themselves, no. I know the drivers. They are individualists, and their motto is "I'm the king of the road."*



- › *Get rid of the cab, then we have another three meters of cargo space.*
- › *Absolutely on our list. The reason for this is to increase reliability and predictability in transport. Of course, it is also a response to the lack of drivers, and the trend is moving toward automated driving.*



- › *The compulsion to save fuel and the lack of qualified drivers will continue to push this development forward.*

Fuel-Saving Technology

Quotes from logisticians and OEMs

Statements on examples of side mirror substitutes and sensor systems



Logistiker

- › *I have no electric mobility whatsoever. It exists only in the form of converted vehicles. Electric mobility would make a lot more sense in the truck segment than in passenger cars.*
- › *Very high on our wishlist, because fuel costs make up roughly a third of all our costs. Platooning (slipstreaming or drafting) would also be very interesting.*
- › *A top priority. The limits of aerodynamics have yet to be reached. For example, if the four-meter height restriction were dropped, deployable fairings on the trailer could deflect the wind better (as in places such as the UK).*



OEM

- › *Side mirror substitutes enhance safety in cities (cornering technology). Legislators could apply requirements in this respect in the future. A general rule is that if something proves to be worthwhile, it catches on.*

Comfort and Convenience Functions in the Interior



Quotes from logisticians and OEMs

Statements on examples of better seats, better infotainment systems, more space



- › *This is important to us because it is the driver's workplace, and a good workplace makes the job more attractive to drivers.*
- › *Not especially desirable from a purchasing perspective, but definitely desirable for the HR department, as they want to create attractive workplaces.*
- › *I'll take everything on offer in this respect – we're talking about someone's workplace. An attractive workplace is important to drivers, and the prestige of the truck brand also plays a role when drivers are deciding which job to take.*



- › *Infotainment is a question of price. Systems should be open to conventional cell phones and smartphones.*

Automated Driving

Automated Driving:
Information
of stake holders
is **necessary**

For the future of my company
automated driving is...

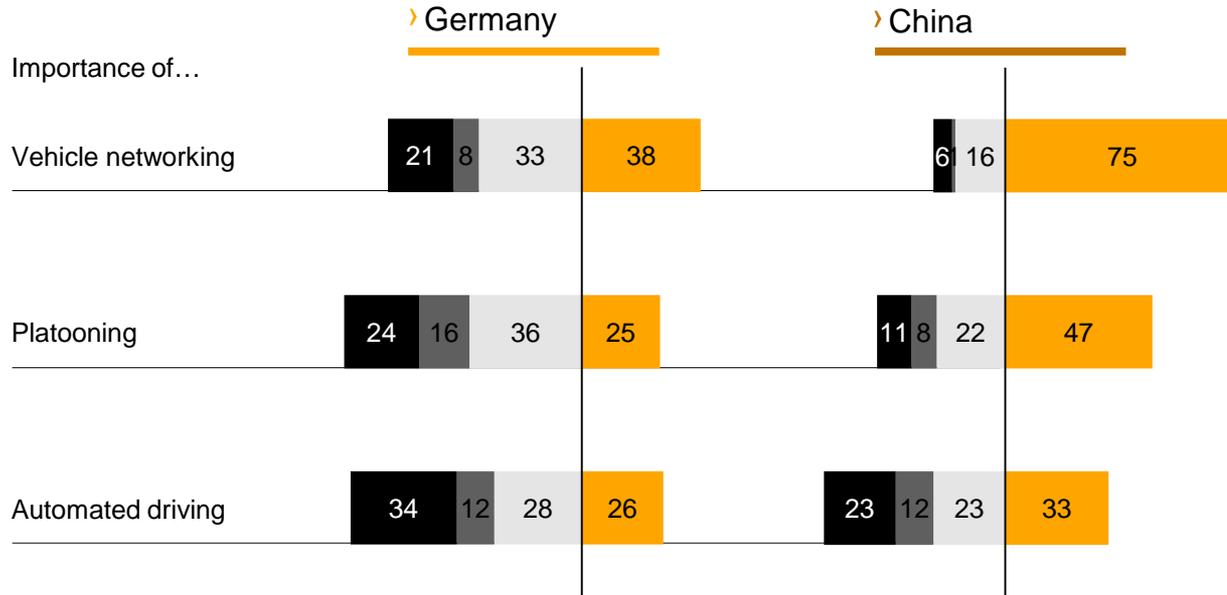


Source: Continental Mobility Study 2016



Importance of Automated Driving for Logisticians

Approval and skepticism at the same time



Logistiker

Question: How important are the following topics to you with regard to the future of your company?

- 10 = Very important to 8
- 7 to 4
- 3 to 2
- 1 = Entirely unimportant

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; Germany: n = 119, China: n = 70

Approval for Automated Driving among Logisticians

More skepticism – anything to add on the subject?

› Germany

› China

Automated driving is attractive to drivers.



Automated driving is an opportunity for the industry.



 Logistiker

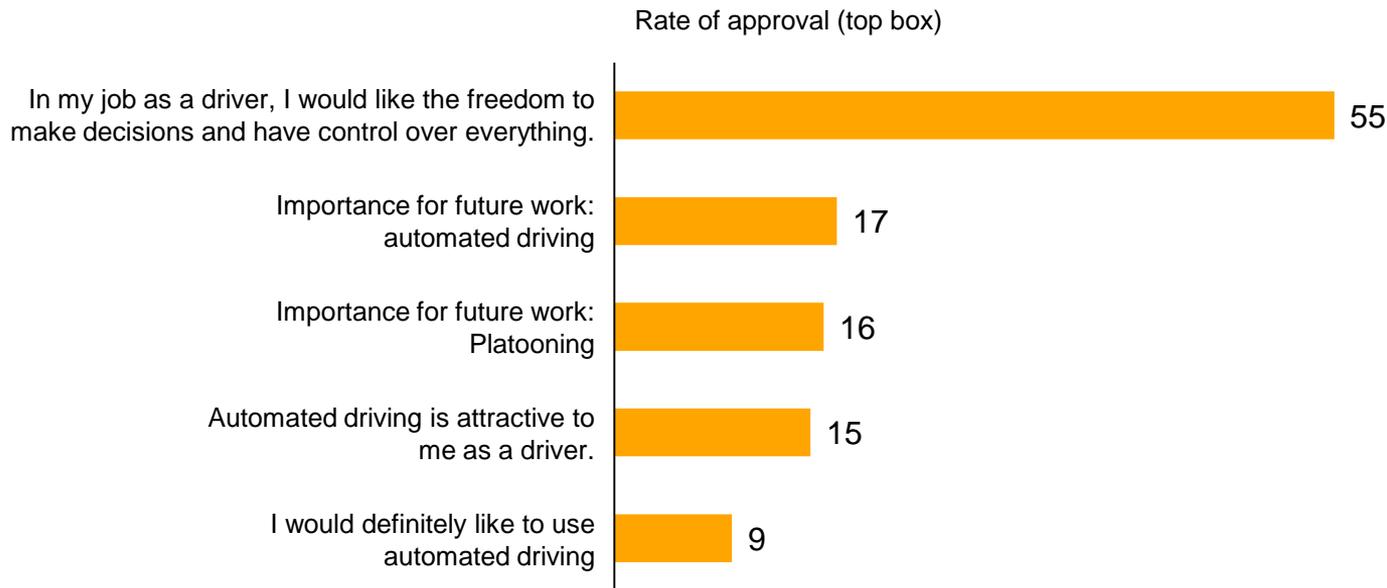
Question: Please say how much you agree with the following statements.

-  1 = Agree completely
-  2
-  3
-  4
-  5
-  6 = Disagree completely

Figures are percentages; where the total is 100%,
 "Can't say" / "Rather not say"
 Germany: n = 119, China: n = 70

Drivers' Assessments of Automated Driving

Low acceptance – freedom is key



Question: How important are the following topics to you with regard to the future of your work? / Would you like to use automated driving in the future? Please say how much you agree with the following statements.

Figures are percentages; combined rate of approval on the following scales: 10 = Very important to 1 = Entirely unimportant; 10 = Very much to 1 = Not at all; 1 = Agree completely to 6 = Disagree completely (top box, from 10 to 8 / 1 to 2), n = 301

Automated Driving:

Quotes from OEMs and associations



- › *"This is a major trend and we're investing in it; it is past the experimental stage. Platooning works and is no longer at an experimental level. The European Truck Platooning Challenge in April 2016 showed that we have already made a lot of progress – it took place on public roads.*

Platooning is a state-of-the-art trend. Platooning also gives us the opportunity to apply new methods of use and is profitable, saves on fuel costs, and makes vehicles safer, cleaner, and more efficient."



- › *"Fully automated driving is not far off now, while we already have partially automated driving, which means considerable increases in efficiency (the expert cites GPS-assisted cruise control as an example and time slot management as a challenge). We will have platooning relatively soon. This will also lead to better use of transport infrastructure and greater road safety, and may help with the acute lack of drivers."*
- › *"The main focus is on platooning and automated driving, which may become a solution to the problem of "atomization" of transported loads. There is a general observable increase in standardization of transport, but also in customization. There is also general observable "industrialization" of transport, relating to scheduling and interconnections."*

Automated Driving :

Quotes from academics and legislators



Forschung

- › *"There will be an increase in automated driving, but the expert does not envisage fully automated driving within the next ten years. This is because of an array of legal problems. Technology is not the problem! Solutions could come in the form of separate truck lanes on freeways, but that would necessitate changes to a lot of infrastructure conditions. Load planning will benefit more from automation in the future. The process chains in this respect are not as neat as they could be at the moment. In the future, computers will do a better job of managing load planning. Incorrect loading is currently one of the chief causes of accidents, and awareness of this problem is growing. For example, loads shifting in the trailer could be reported to the driver more quickly and warnings could be issued. An 'intelligent trailer' does not cost that much."*



Gesetzgeber

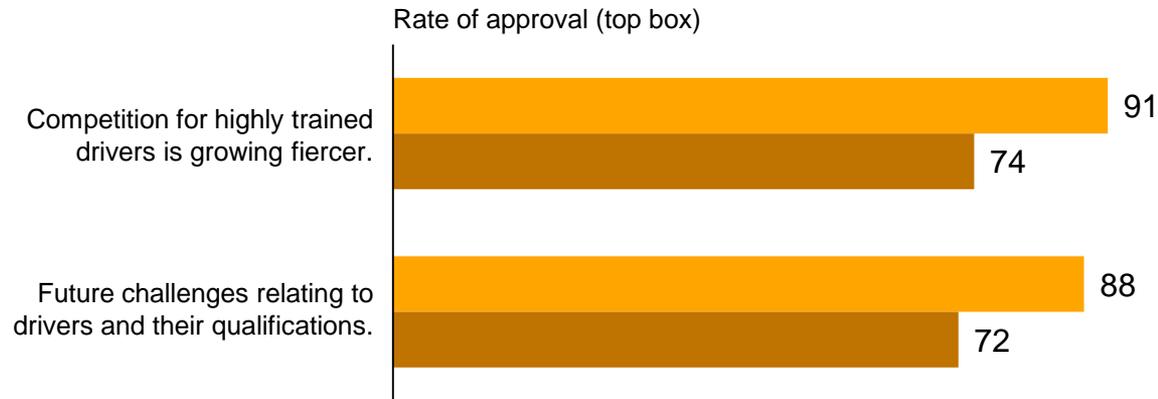
- › *"Platooning with an electronic towbar: I can't imagine that in practice. For example, a truck loaded with 15 metric tons of paper is driving at a distance of 15 m ahead of one of its colleagues when a tire catches fire or a passenger car comes into the space between them. I have more questions than answers on this subject. The liability issues are totally unresolved! The underlying legal structure has yet to be thought out. Legal structures are also important for the new relationship that will develop between the driver and the truck and the legal relationships between the automated vehicles themselves. What sort of legal relationships will arise from the vehicle software, which is essentially programmed instructions, and who is liable for these instructions? What are the risks to insurers and how can insurers assess these risks?"*

The Role of the Driver



Challenges concerning Drivers

Tougher competition and more qualifications expected



Question: Now, a question on your assessment of challenges in the transport business and your expectations for the future of the industry. In your opinion, what is the scale of the future challenges? Please say how much you agree with the following statements.

Germany

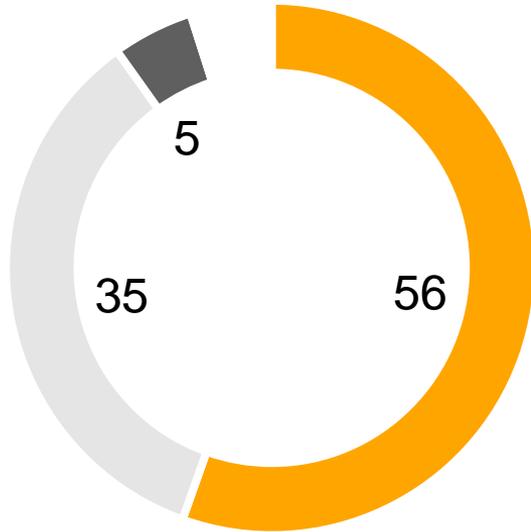
China

Figures are percentages; combined rate of approval on the following scales: 10 = Enormous to 1 = Minimal; 1 = Agree completely to 6 = Disagree completely (top box, from 10 to 8 / 1 to 2); Germany: n = 119, China: n = 70

Drivers' Assessments of Professional Qualifications

Majority very important

Future challenges relating to drivers' professional qualifications



 Fernfahrer



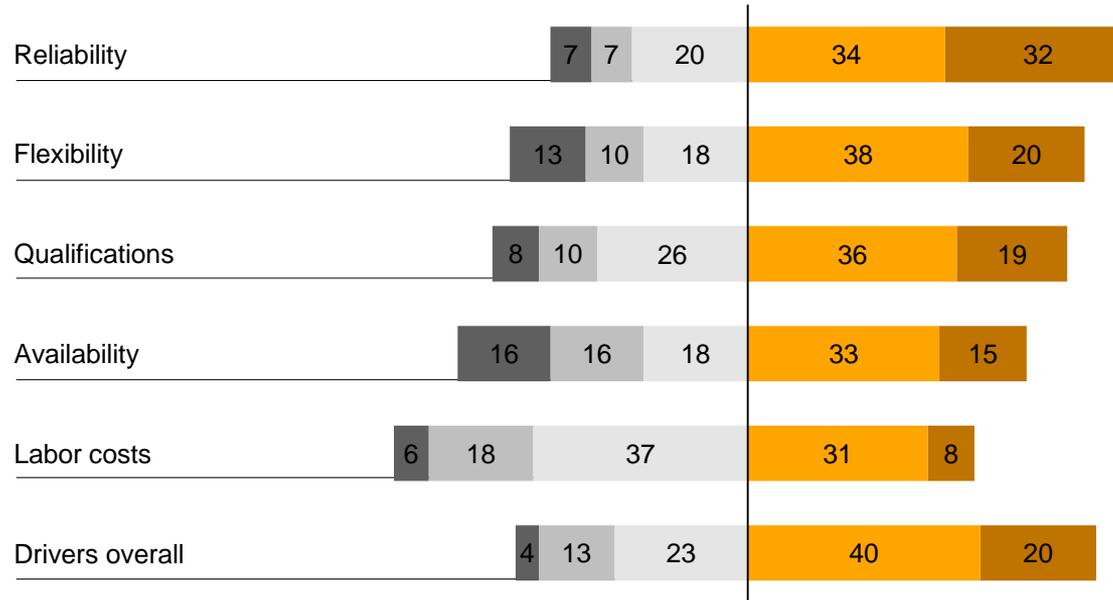
Question: Now, a question on your assessment of challenges in the transport sector and your expectations for the future. In your opinion, what is the scale of the future challenges in the following areas?

-  10 = Enormous to 8
-  7 to 4
-  3 to 1 = Minimal
-  Can't say / Rather not say

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Logisticians' Satisfaction with Drivers

Availability and labor costs are the biggest problems



 Logistiker



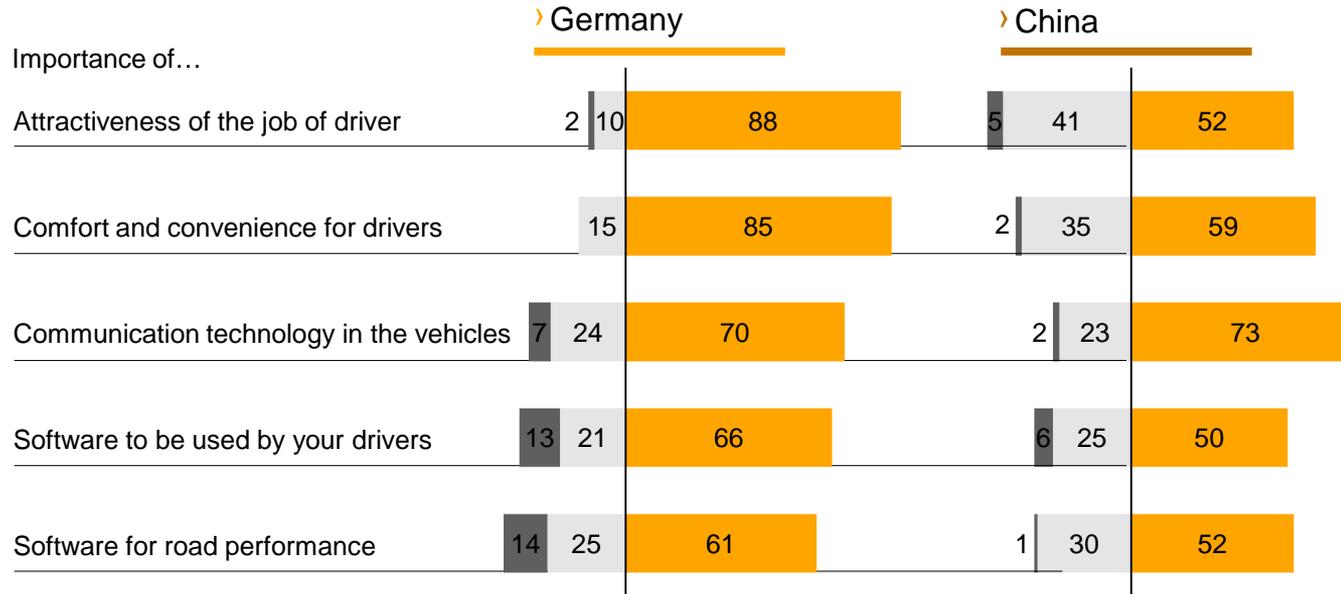
Question: Now to your company's drivers. How satisfied are you with the following aspects?

- 1 = Very satisfied
- 2
- 3
- 4
- 5 + 6 = Very dissatisfied

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 119

Driver Topics from the Logisticians' Perspective

Many aspects are more relevant in Germany than in China



 Logistiker



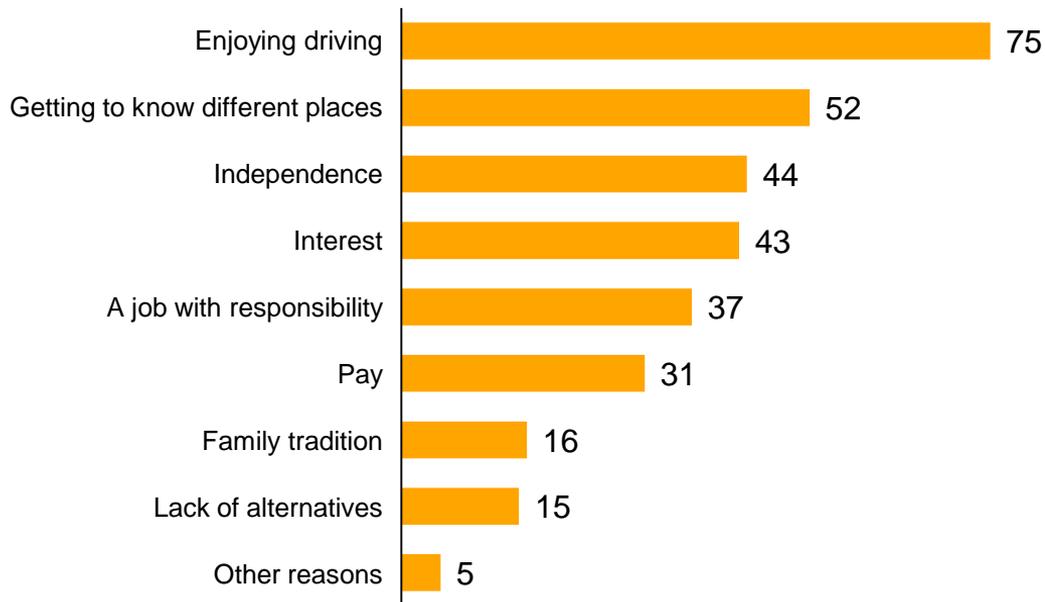
Question: Please indicate how important the following aspects of the transport segment are to you in your day-to-day work.

■ 10 = Very important to 8
■ 7 to 4
■ 3 to 1 = Entirely unimportant

Figures are percentages; where the total is 100%,
 "Can't say" / "Rather not say"
 China: n = 70

Reasons for Choosing to Work as a Driver

Enjoying driving dominates

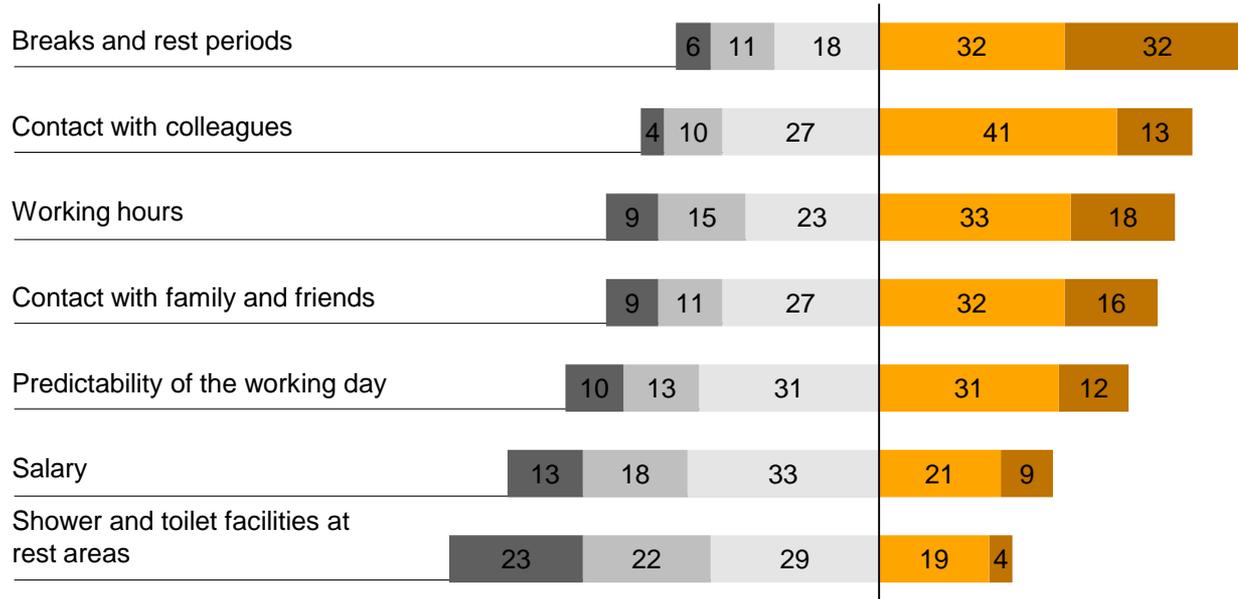


Question: There can be various reasons for choosing to work as a driver. What about you? Which of the following reasons apply to you?

Figures are percentages; multiple selections possible; n = 301

Drivers' Satisfaction with Working Conditions

Most satisfied with some aspects, but not with pay



 Fernfahrer



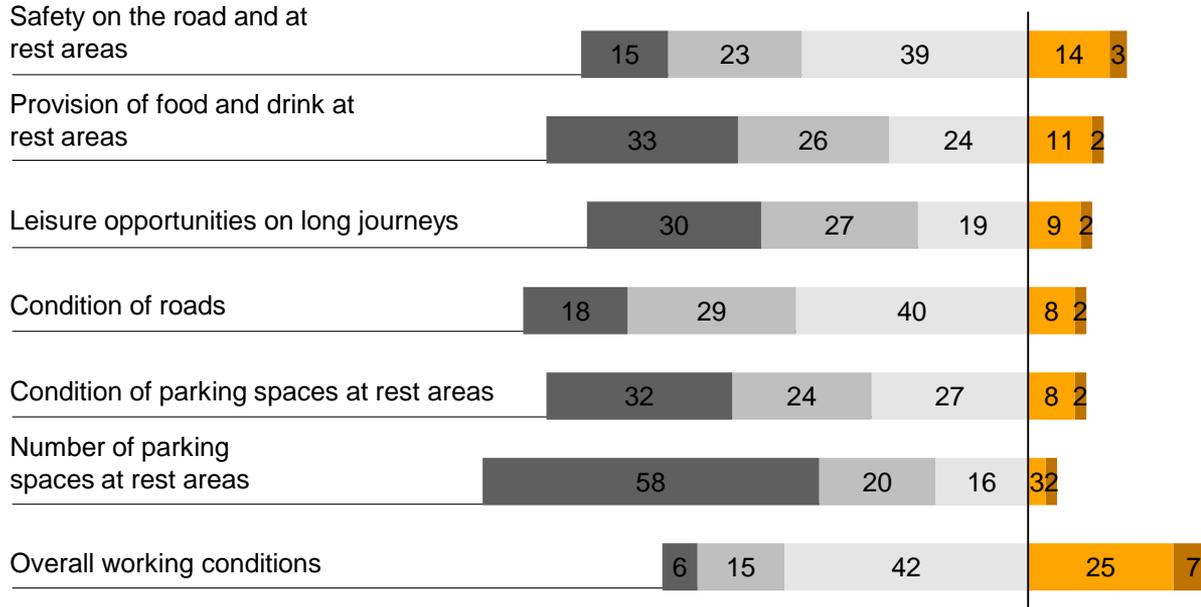
Question: Now, let's move on to your working conditions as a driver. How satisfied are you with the following aspects?

- 1 = Very satisfied
- 2
- 3
- 4
- 5 + 6 = Very dissatisfied

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Drivers' Satisfaction with Working Conditions

Extremely low in respect of infrastructure in particular



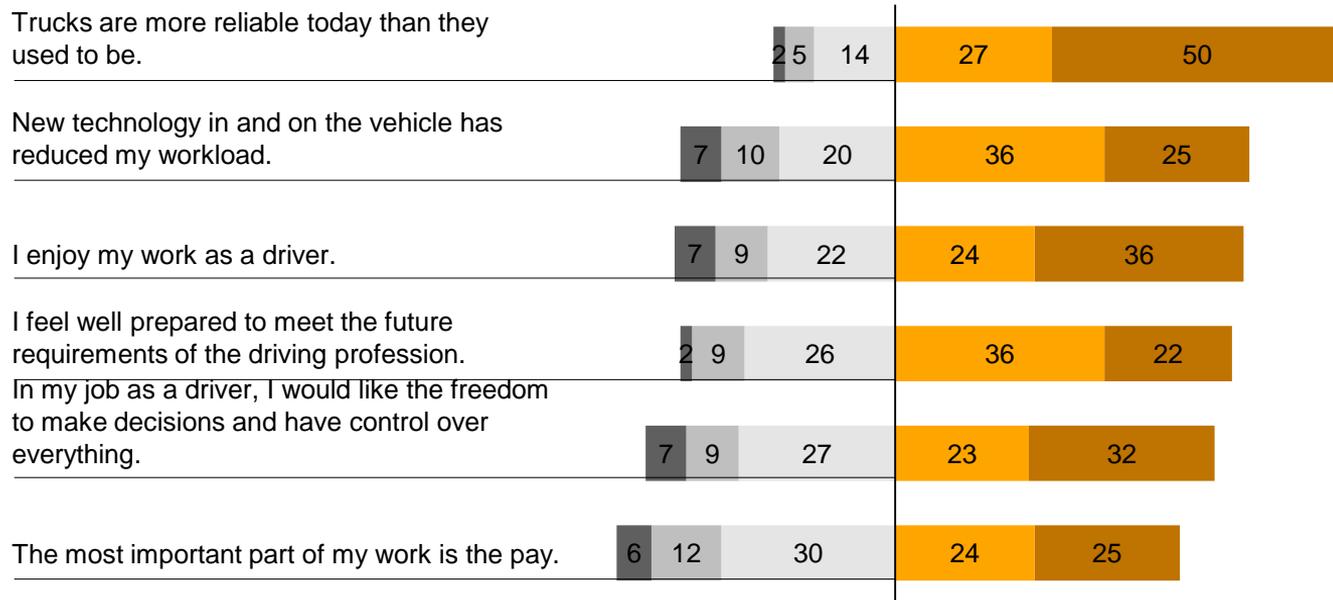
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- 4
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Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Drivers' Assessments of Statements on the Profession

Modern trucks are considered more reliable



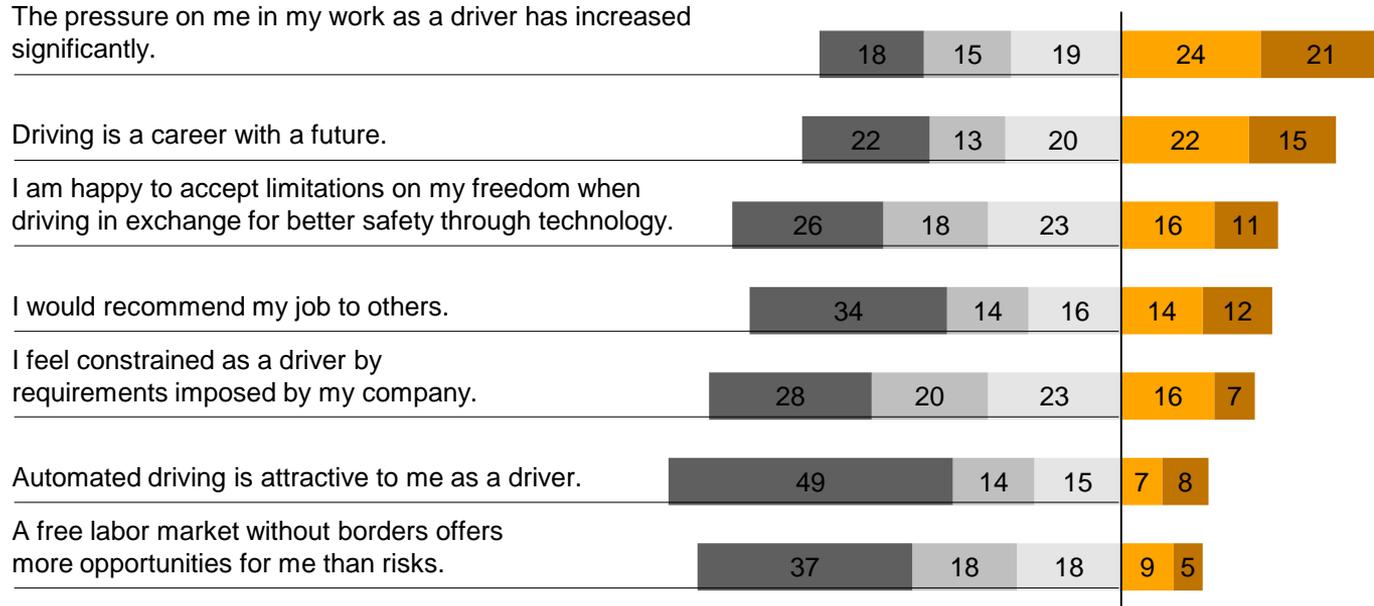
Question: Please say how much you agree with the following statements.

- 1 = Agree completely
- 2
- 3
- 4
- 5 + 6 = Disagree completely

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Drivers' Assessments of Statements on the Profession

Free labor market viewed as a risk – and automation?



Question: Please say how much you agree with the following statements.

- 1 = Agree completely
- 2
- 3
- 4
- 5 + 6 = Disagree completely

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Driver Support and Monitoring Using Software

Quotes from interviews with experts (logisticians)



- › *"I have some experience with an automatic geography-based cruise control system. Development is very far along – it is possible to reach a level of driving efficiency of almost 99%, were there not other road users preventing it. I think that the technique trainers and eco-trainers are also a good development, as trucks are becoming increasingly complex."*
- › *"We are on the lookout for suitable systems, A) from a financial perspective and B) considering environmental aspects."*
- › *"There are various providers of training systems (grading and trainer support), with mixed results in our experience."*
- › *"More intuitive solutions, graphics or signals that show how I could drive more effectively, and simultaneously provide encouragement for the driver to do so as well."*
- › *"Platooning is one issue; a sort of autopilot for slipstreaming at standard speed. However, software must be standardized for various vehicle types and manufacturers."*
- › *"It is important to us to monitor a vehicle's consumption. We are concerned not with keeping an eye on the driver as a person but with tracking the driving situation. Bear in mind also that in many countries, the trade unions have to give their consent."*
- › *"What is required is the human-machine interface. A high level of functionality is required here, along with intuitive operability."*
- › *"Companies have become more aware of the issue of road performance and some have already reduced their maximum speeds."*

Challenges

Digitalization: Most companies are worried about being left behind

We must make sure we do not get left behind when it comes to digitalization.

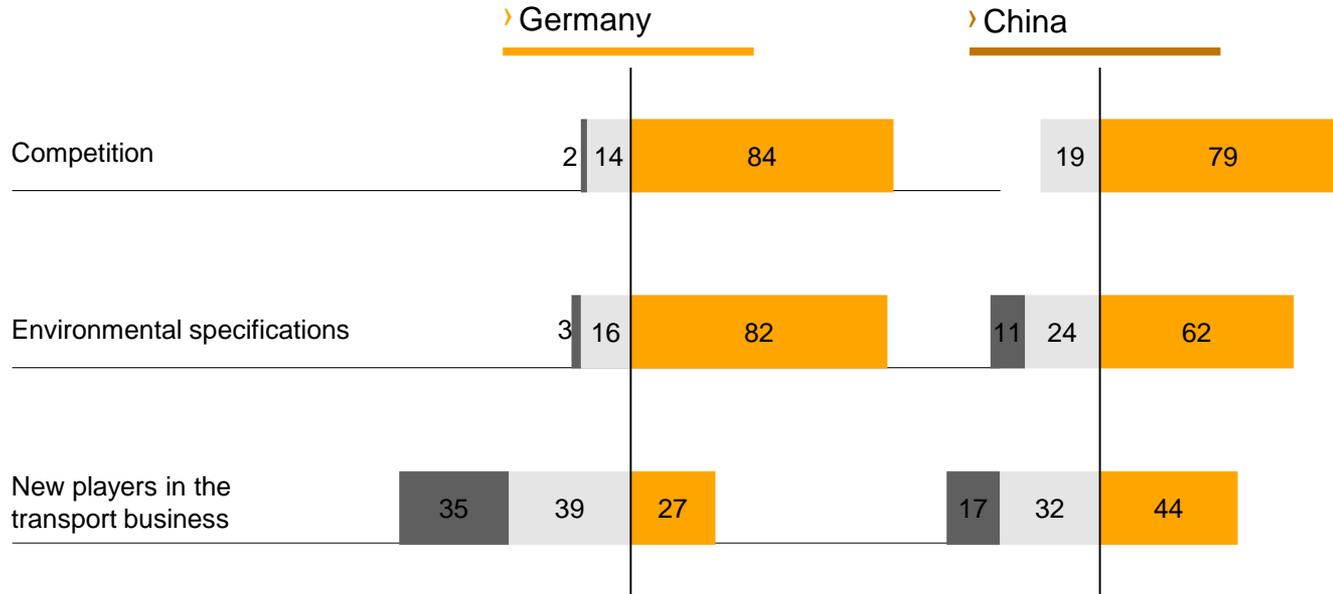


Source: Continental Mobility Study 2016



Future Challenges from the Perspective of Logisticians

Primarily competition and environmental specifications



 Logistiker



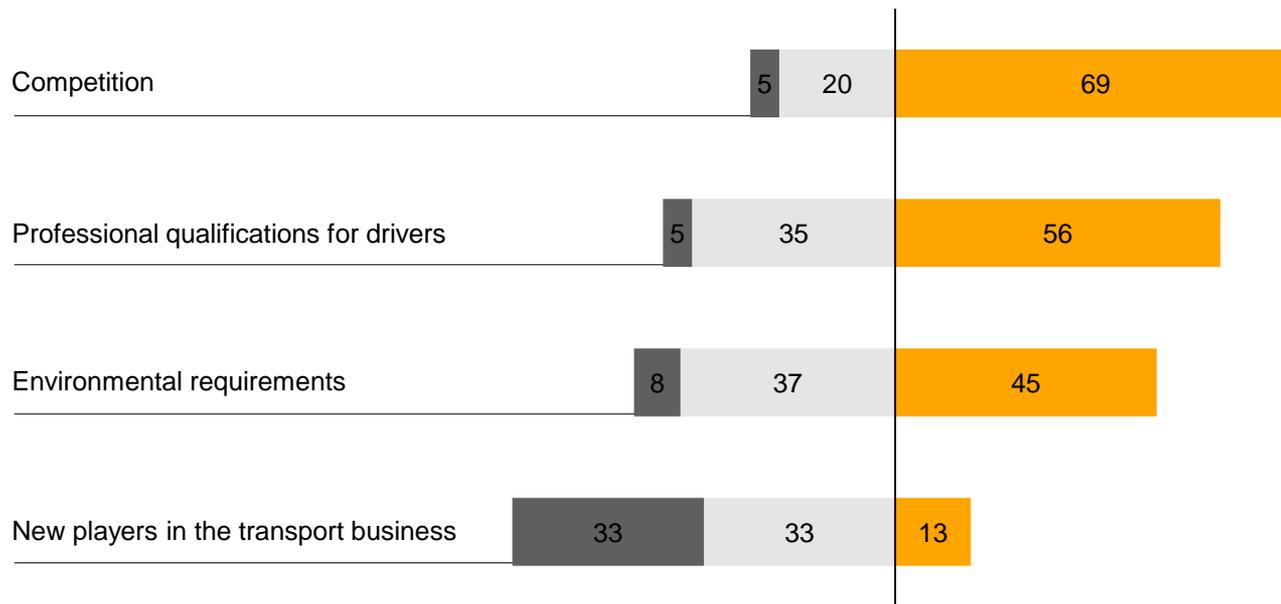
Question: Now, a question on your assessment of challenges in the transport business and your expectations for the future of the industry. In your opinion, what is the scale of the future challenges in the following areas?

■ 10 = Enormous to 8
■ 7 to 4
■ 3 to 1 = Minimal

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; Germany: n = 127, China: n = 150

Future Challenges from the Perspective of Drivers

Primarily competition and qualifications



 Fernfahrer

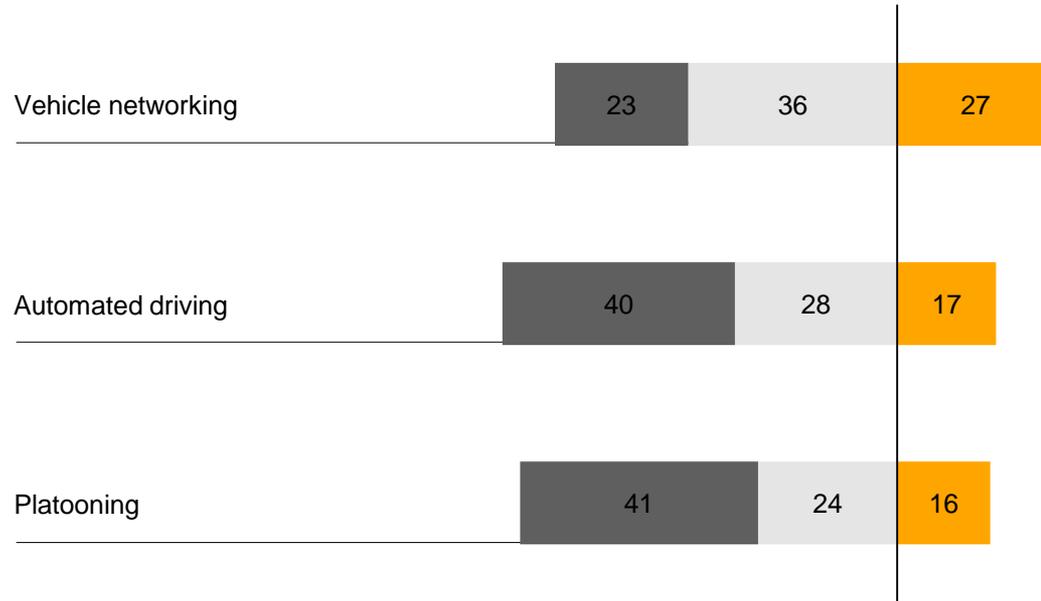

Question: Now, a question on your assessment of challenges in the transport sector and your expectations for the future. In your opinion, what is the scale of the future challenges in the following areas?

 10 = Enormous to 8
 7 to 4
 3 to 1 = Minimal

Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Importance of Future Topics for Drivers

Many still a long way off?



 Fernfahrer


Question: How important are the following topics to you with regard to the future of your work?

 10 = Very important to 8
 7 to 4
 3 to 1 = Entirely unimportant

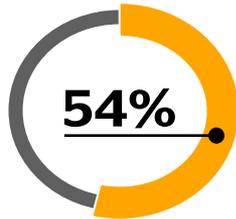
Figures are percentages; where the total is 100%, the remainder chose "Can't say" / "Rather not say"; n = 301

Trucking Fleets & Digitalization

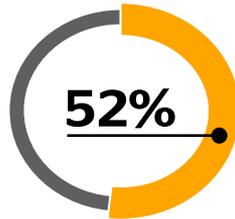
Opportunities still to discover



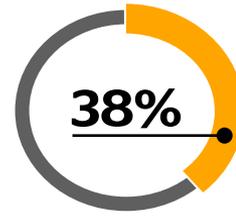
... have an idea what digitalization in transport industry **means**.



... expect an **impact** on their business.



... are **concerned** about the risk to fall behind the development.



...see digitalization as already **taking place** in transportation industry.



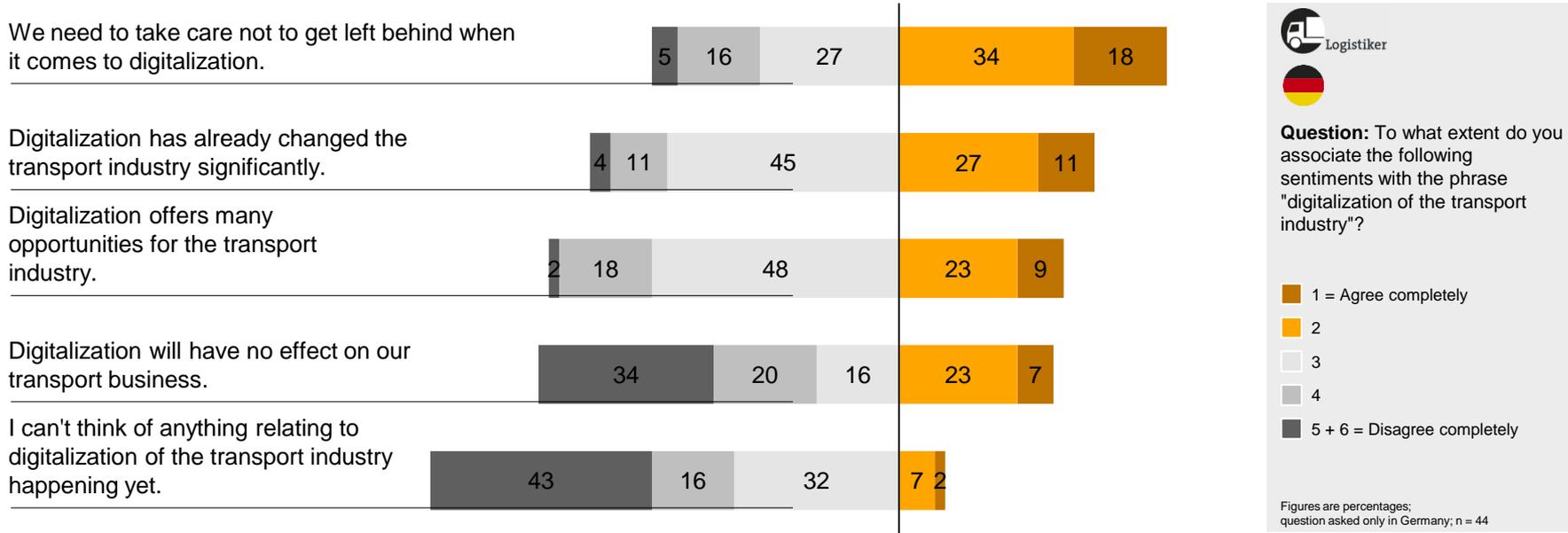
... see a lot of **opportunities** in digitalization.



Agree + Totally agree
Fleets in Germany; n=44

Digitalization: The Perspective of the Logisticians

Most are worried about getting left behind!



Environmental Specifications on the Rise and Somewhat Underestimated



Quotes from logisticians

- › *We are looking at all aspects of the issue of the environment, i.e. not just those relating to vehicles but also those involving buildings and warehouses. We have a strategic corporate goal: improving CO₂ efficiency by 30% by 2020! That applies globally – not just to us, but to our subcontractors as well. Monitoring our success in achieving this goal is certainly not especially easy, but we have developed our own systems to do so.*
- › *Oil is a finite resource. With regard to the Euro 6 standard, half of me is smiling and half is crying. Smiling, because fewer emissions are produced. Crying, because the soot particles produced and emitted into the environment are becoming ever smaller, which means that they are absorbed much more quickly and end up in the bloodstream.*
- › *The Euro standards are growing ever more rigorous, while low-emission zones present problems for us, but requests from our customers for environmentally friendly services are intensifying. In the long term, environmental specifications such as those applicable in Norway and the Netherlands can no longer be fulfilled without electric vehicles.*
- › *We are expecting regulations (e.g. imposed by the government)! These regulations will amplify the necessity to move toward alternative drives. Manufacturers should work quickly to develop these drives!*
- › *Environmental specifications are certainly a good idea, but engine development over the past decade has focused more on operating within limits than on developing suitable vehicle drives, even though taking this route would enable environmental progress to be made.*

Software

Vehicle Management Software is still not used very frequently

48% don't use vehicle management software

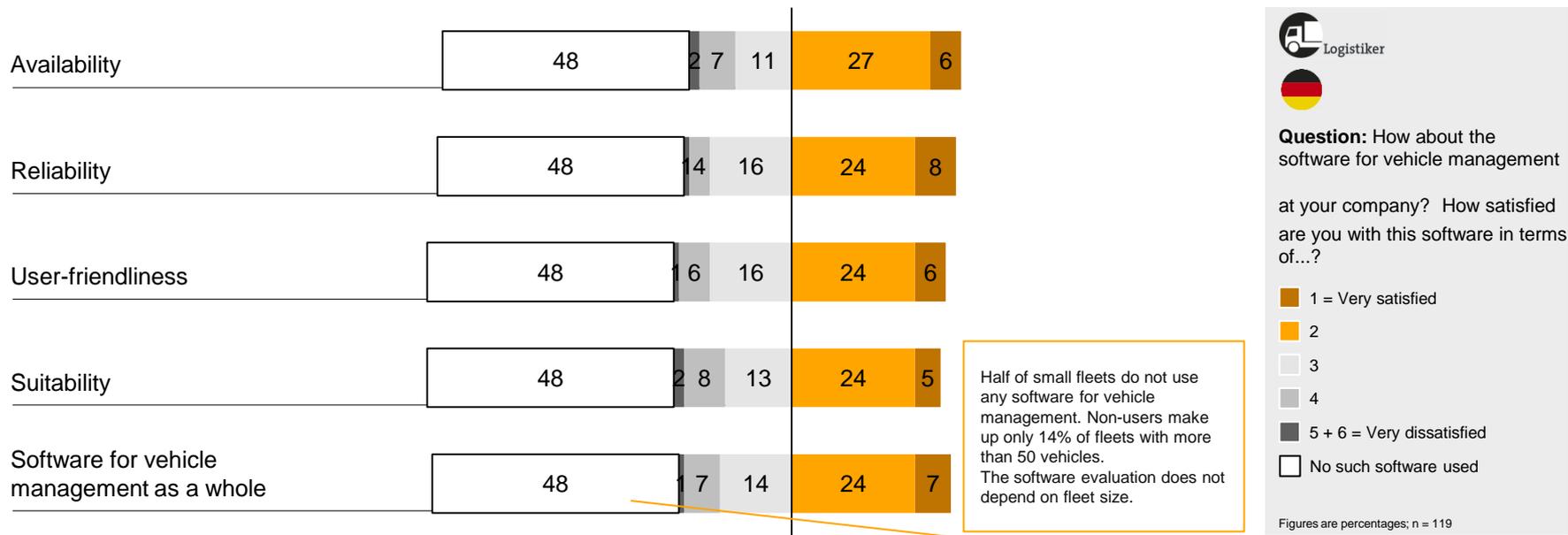


No Software in use

Source: Continental
Mobility Study
2016

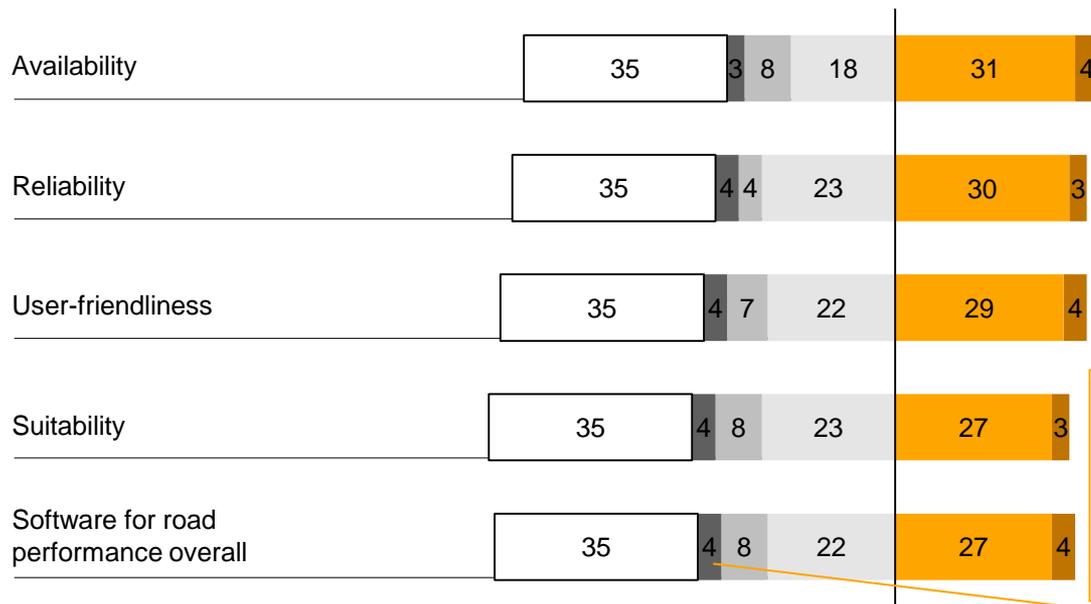
Satisfaction with *Vehicle Management Software*

If used, Software tends to be rated positively



Satisfaction with *Road Performance Software*

Mediocre ratings – and a third do not use any



Approximately 40% of small fleets do not use software for managing road performance. Non-users make up only 7% of fleets with more than 50 vehicles. The software is evaluated more poorly by smaller fleets with fewer than 50 vehicles in particular.

 Logistik



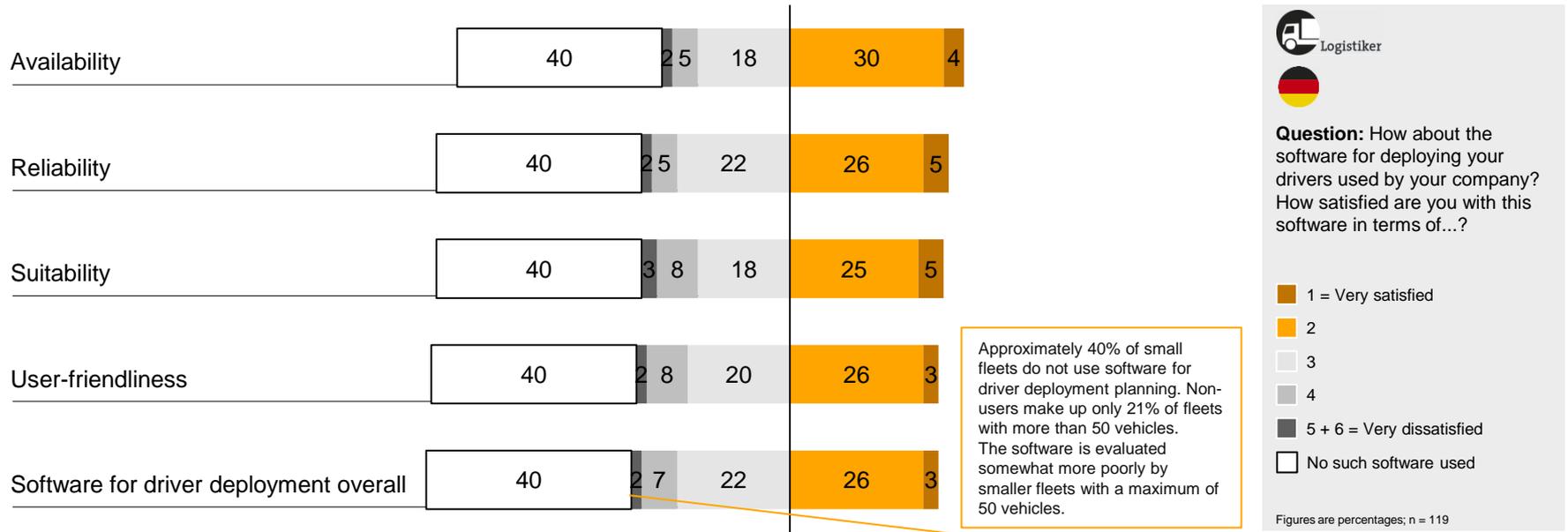
Question: Next, software for managing road performance. How satisfied are you with this software in terms of...?

-  1 = Very satisfied
-  2
-  3
-  4
-  5 + 6 = Very dissatisfied
-  No such software used

Figures are percentages; n = 119

Satisfaction with *Driver Deployment Software*

Many do not (yet) use any; those that do tend to be satisfied



Summary

Mobility Study 2016

Summary

The transport industry is locked in hard-fought competition. The volume of transport will continue to rise in the future and new players from other sectors are setting up their own logistics chains (Amazon, Alibaba). Meanwhile, the small market shares of even the large companies and especially the anticipated environmental specifications are increasing the cost pressure. The future of the industry is eyed critically, although this is countered by optimism regarding respondents' own companies.

There is little leeway for innovation; investments need to pay off within just two years. As a result, there is more of a focus on small, evolutionary products, due partly to skepticism regarding innovation. Fuel-saving, driver assistance, and tire-pressure monitoring are intended to make workflows more efficient. Drivers would like solutions that improve comfort and convenience. Apart from wage costs, they are satisfied with their jobs; despite this, there are few well-trained drivers.

Automated driving appears "a long way off" for the industry. Partial solutions such as platooning are greeted with mixed opinions. There is fear of being left behind in progress toward digital connectivity, but the purpose of digitalization / automated driving is unclear. The freedom to make decisions and be in control is important to drivers, even at the expense of safety. Accordingly, they harbor little desire for automated driving.

Existing software solutions are not used, for the most part. Divergent interfaces and the "software jungle" come in for criticism. Nonetheless, there is a desire for solutions directly relating to drivers in particular. When software is used, it is also rated positively.

From the perspective of Continental

- › Continental Mobility Study 2016 shows: Only 20 percent (21 percent China) of fleet operators desire automated driving but especially drivers with long experience want driving assistance systems.
- › Because Platooning based on automated driving offers great advantages for security and efficiency of road traffic, the industry must readjust: Information of the stake holders is necessary.
- › Satisfaction is the best base for new technologies: The majority (66 percent) is satisfied with reliability and user-friendliness of today's driving assistance systems.
- › A quick amortization of investments is important for the business characterized by costs and environmental standards (82 percent (D), 65 percent (CHN) of fleet operators want amortization within 1-2 years)
- › The potential of fuel saving technologies is far from exhaustion: Less than 50 percent of the drivers are encouraged to drive fuel-efficient. Incentives are given only for 16 (small trucks 20) percent. To 47 percent of small truck drivers this topic isn't even mentioned.

How reacts Continental to the results of the study?

- › With all of our innovations, we look at the direct benefits for fleet operators. For them, it all comes down to increasing efficiency and cutting costs. For example, current technologies help us to reduce fuel consumption in the heavy vehicle category by up to 6 liters per 100 kilometers. At the same time, the necessity to make savings forms the basis of our efforts, at all levels, to bring automated slipstream driving – also known as platooning - into production as quickly as possible. We are working on the technical aspects of this. Now no time must be wasted in establishing the legal framework.
- › (Dr. Elmar Degenhart, IAA fair magazine 2016)

Continental Mobility Study 2016

www.continental-mobility-study.com