ERICSSON

A WIDER SHARING ECOSYSTEM

The pivotal role of data in transport solutions

October 2015

A MARKET ON THE MOVE

CONTENTS

Connectivity is causing a shift in business models from products to services, with data being the key asset affecting this change. As such, the transport industry is experiencing a seismic shift in technology, regulation and user behavior, which will force all key actors to reassess their business models.

Time to embrace a new approach

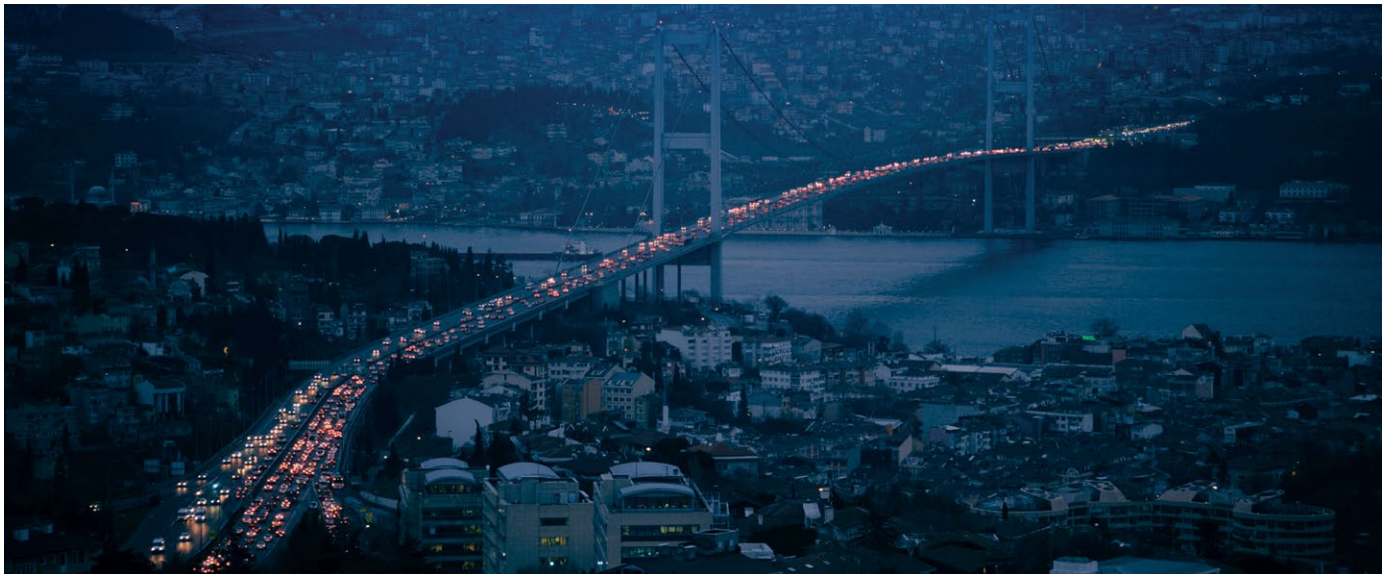
Connectivity has already started to make an impact in the world of transport. The first phase focused on transactional connectivity, where data would be sent in the case of a traffic incident. Now, the focus of the second phase is on being connected, including sending and receiving data, and the ability to share it between companies and industries.

The technology is in place to build more efficient, convenient and safer transport solutions based on passenger vehicle-centric ecosystems. But there will be challenges to overcome, in terms of cooperating with new partners from different industries, gaining user trust, ensuring quality, reliability and security of data and controlling its flow in a highly shared environment. This paper takes a closer look at these challenges, and what will be required to move past them.

New business models, strategies and legislation must be put in place

Constant access to shared, real-time data is starting to be introduced by technology companies like Uber and Google. In this area, most automotive manufacturers are still yet to capture internal data from their own vehicles, and will need to put a good data strategy in place before they can start accessing or sharing data.

While the marketplace may be flooded with developers offering innovative services, in order for the technology to reach its full potential, new business models, strategies and legislation need to be put in place for sharing data in an integrated way. This must be based on FRAND (fair, reasonable and non-discriminatory) conditions, and still protect the privacy of the driver.



TRANSPORT TRENDS

Travelling by road should be safe, convenient and easy, but often that's not the case. Road traffic collisions account for 1.24 million fatalities every year, according to the most recent data from the World Health Organization. On top of this there is the cost of traffic congestion – calculated by adding up wasted fuel, time and higher business costs – which already amounts to well over USD 100 billion a year in the US alone.

We are seeing several key changes taking place in the transport industry. Firstly, a move towards multi-modal transport solutions, whereby passengers receive accurate, real-time traffic data and public transport information. This enables them to amend their journey plans accordingly. For example, if the route is congested, a driver may choose to park their car and take a rental bike to complete their journey. Furthermore, as the car-sharing market continues to grow by 30 percent each year, fewer people now are willing to purchase a car, with a greater number showing interest in using mobility services such as taxis or short-term rentals. This signals a huge change in the way the industry is set up and will demand a fresh approach.

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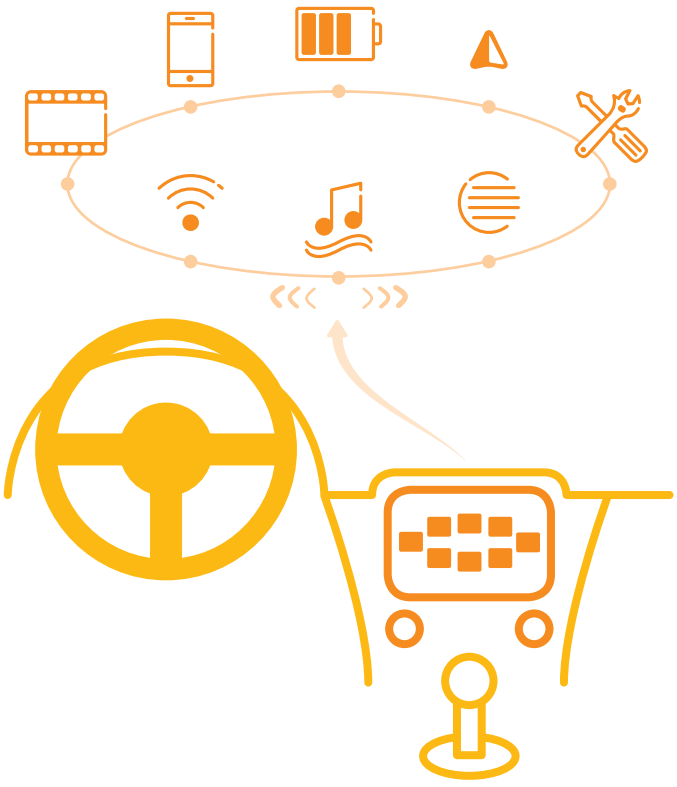


The industry is moving towards transport that is connected, cooperative, electrical, automated and multi-modal

In parallel we will see an increased move towards autonomous driving, with driverless vehicles expected to be on our roads in the next 5 to 10 years. This development will in turn free up time for the passenger, opening up the market for in-car infotainment, an area which has yet to reach its full potential.

Another area of great concern is sustainability. The transport system is currently one of the biggest polluters in the world. Regulatory initiatives are being put in place to encourage a move from fossil fuel, and subsequently we are seeing a big push towards electrification. This will require the relevant data to be available between partners, to locate charging stations and reduce peak consumption of the electrical grid.

THE ROAD AHEAD

In such a transformative landscape, there are limitless possibilities for new partnerships and business models in and around the automotive industry. As a result, many applications are cropping up to address the problems of road safety and new business development partners.

Safer and smarter

EU regulation on automatic emergency calls (eCalls) will speed up and enhance rescue and recovery operations in the event of a crash. The regulation that all machine-readable, traffic safety-relevant data held by authorities must be made available at a portal, as well as real-time traffic information, will open up opportunities for service providers. On the other hand, we now also have collaborative apps such as Waze providing a platform for safety traffic data that is shared by the drivers themselves.

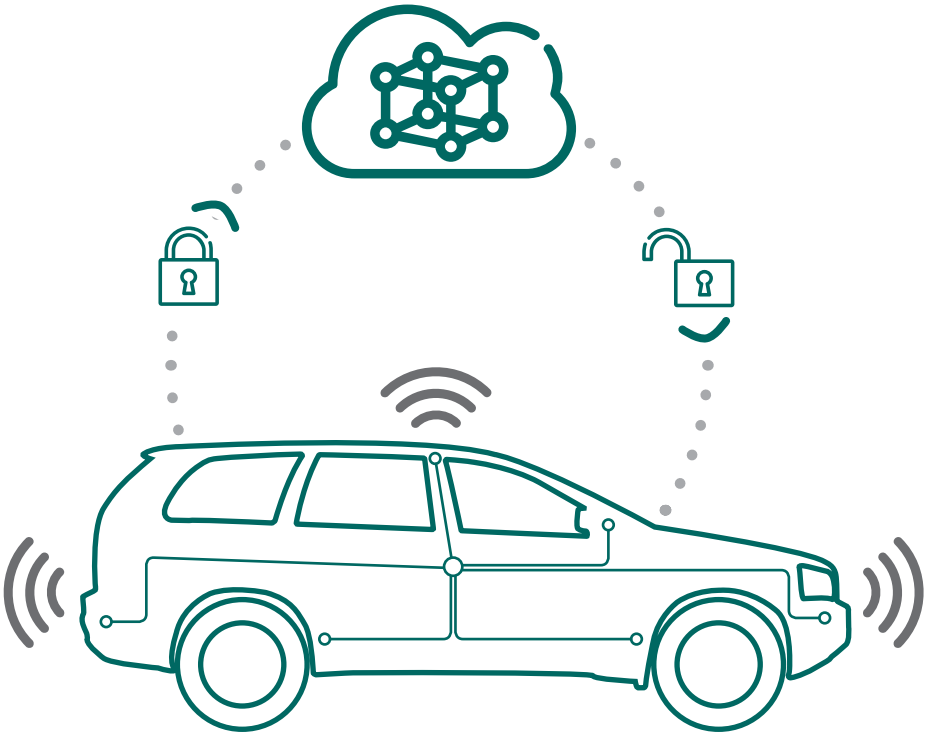
There are some ongoing trials around the sharing of road hazard warning data based on sensor information from vehicles. These can take the form of a warning for a queue ending, a message alerting drivers to the presence of a slow-moving maintenance vehicle, or an emergency vehicle entering a congested environment. One trial example is the virtual brake light, which when activated by high braking pressure uses the mobile network to send a warning message to the vehicle behind, bypassing the scope for human error or delayed response. Another is a trial by Volvo Cars in Sweden and Norway, which allows cars to share road friction information with other vehicles and with road authorities.

New business with partners

A use case for vehicle-generated data that has already been implemented is Usage-Based Insurance (UBI) premiums, or the pay-as-you-drive model, which is starting to become available worldwide. Similarly, new payment models could come into force for rental vehicles. Today when you rent a car, the price is based on how long you drive the car for, or how far you drive it. In the future, vehicle rental companies could have access to data on how the car has been driven and set their fees accordingly.

More use cases will soon arise, and the availability of information will bring new suppliers of services. With the electrification of vehicles there come challenges as to where vehicles are charged and who pays the bill. Collaboration between manufacturers and utilities should allow for cars to be recharged at almost any point in the grid, while still ensuring the full bill is paid by the owner of the car.

TRANSPARENCY LEADS TO TRUST



Bridging information islands

The opportunities presented by vehicle-centric data sharing are seemingly endless, but one thing that all potential applications have in common is the requirement for correct, trustworthy and timely information and the protection of privacy. All parties within the ecosystem must have automatic and immediate visibility of changing traffic scenarios, and in order to achieve this, a robust data framework must be built based on shared, accurate and standardized information from a variety of sources.

Users appreciate transparency when it comes to how their data is used

Gartner estimates that by 2017 around 50 percent of the niche solutions around vehicle-centric data sharing will be developed by small pop-up companies. On one hand, this will create a complex marketplace with actors from traditionally disparate backgrounds. On the other, it will boost innovation and new business models. Information gained from sensors, vehicles, social media and other sources are currently held in silos. Gathering it together in a standardized format is a mammoth task. Cross sector platforms can be put in place to simplify data sharing between different, traditionally separate sectors, without losing quality or timeliness.

Building trust and transparency

Privacy is a big challenge in the sharing of data. This issue will not be solved by technology alone – a legal framework is required to determine who the rightful data owner is. The EU, for example, has privacy legislation in place that will be effective by 2017. The industry has two years to find a way to work according to this.

Consumers are not as familiar with sharing data outside of the world of social media, where it is now so widely accepted. However, they are happy to share data if they feel they understand the value of doing so, and how the data will be used. Replicating social media frameworks and authorization procedures could quickly gain user acceptance.

The solution requires public Application Program Interfaces (APIs) to specify what data is available from different sources in the vehicle, in a similar way to app download agreements on a smartphone. There are both ISO standards and industry standards coming up. The data defined within these APIs would be made available in a controlled way and certified for developing certain applications related to infotainment, efficiency or safety. This transparency would equip the user with information on how their data is being used and may motivate them to approve more sharing.

DATA LOCATION AND OWNERSHIP

Within such a complex infrastructure there will always be questions around who owns what type of data within which business model. This is a big issue that needs to be resolved and which can depend on many factors, including the nature of the data – whether raw or processed – and the social responsibility of sharing that data to the wider community, for example when the information could potentially help others to avoid a traffic accident.

A question of quality

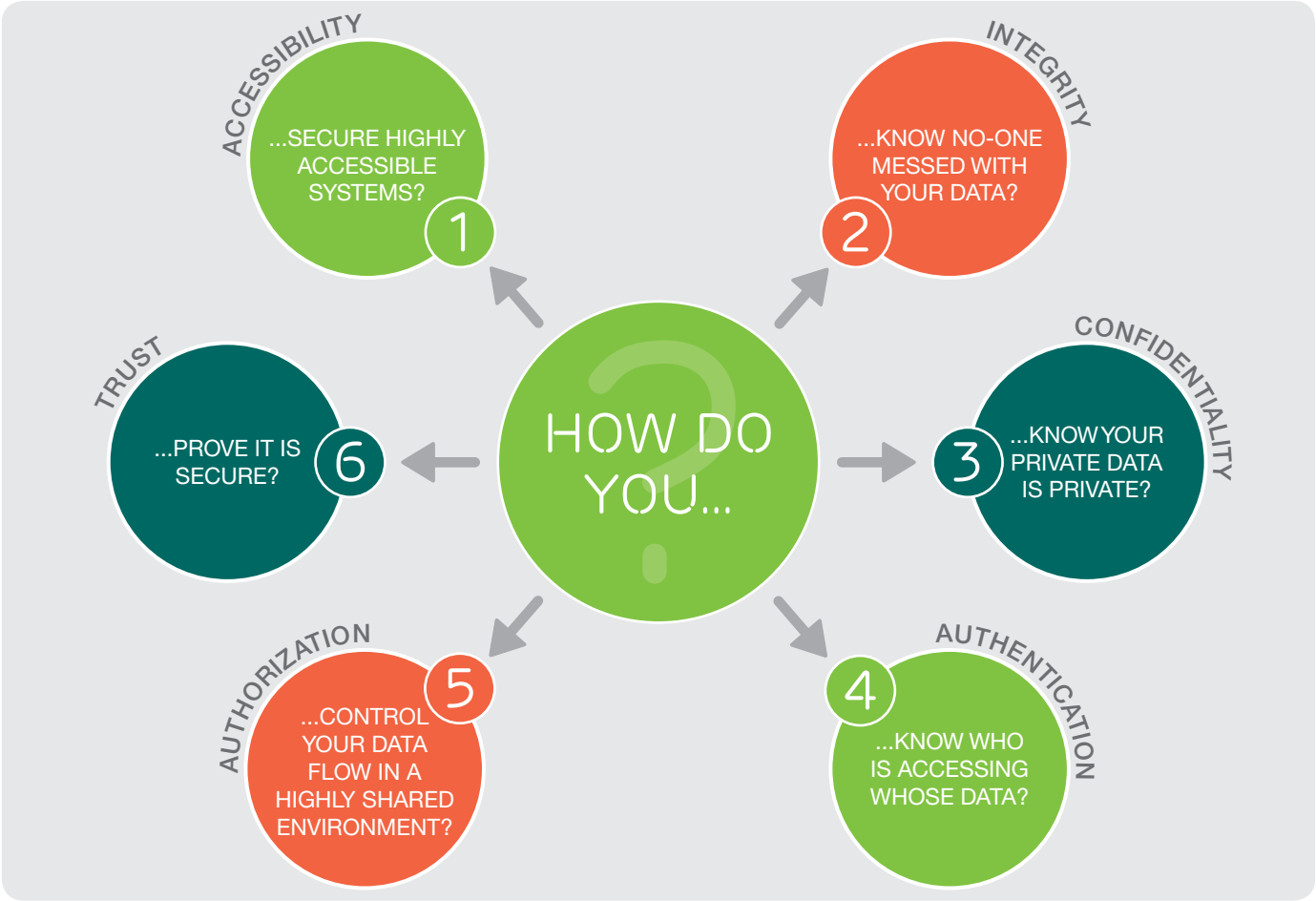
Standardization and quality of data is another important issue, as business and safety decisions will be made based on the data. Data can be condensed, contextualized, categorized and calculated to provide information. Further processing brings knowledge in the form of understanding and experience based on insights.

Transparency when it comes to the source and level of data processing is crucial in order for partners and ecosystems to cooperate.

Traffic data aggregators filter data and if any piece of data is reported to be inaccurate or outdated, mechanisms are put in place to remove it. The data receiver can set quality requirements with partners and build mechanisms to secure its compliance.

Mitigating risk and building trust

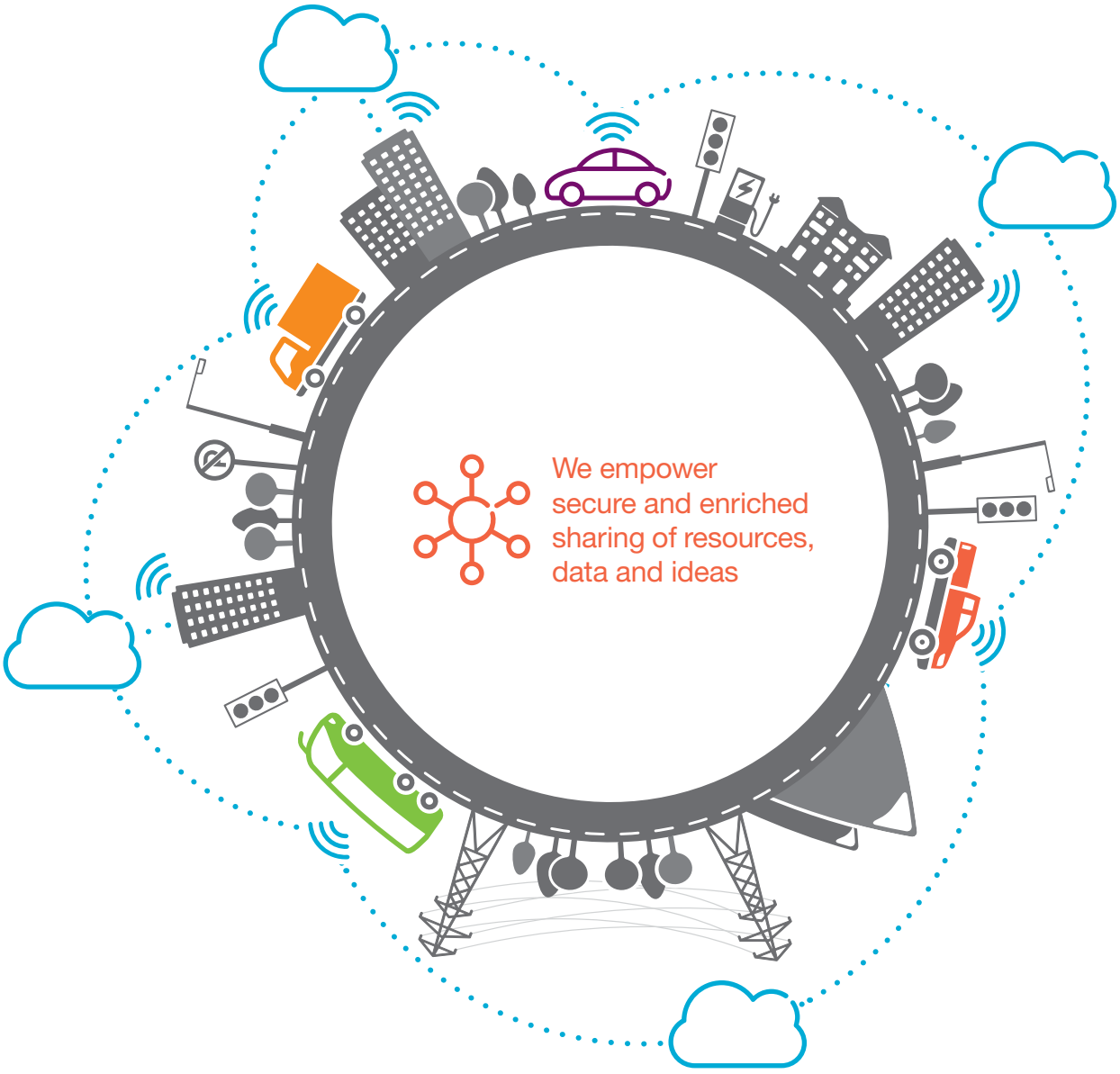
For any open data sharing environment, the need to guarantee availability, integrity, accessibility and confidentiality of data in a highly mobile scenario is the cornerstone for building trust. The fundamental questions you should ask include:



Signing and source verifying procedures can be put in place to guarantee that a vehicle sensor, for example, has been signed off where it was installed. Then if any subsequent changes occur to that sensor, it is clear that it may have been tampered with and can no longer be deemed trustworthy as data source.

While there have been some cases of connected vehicles being hacked, transport should be no different to secure ecosystems like financial, health or mobile networks. With the right technology in place, the necessary actions can be swiftly taken to mitigate risk and build trust.

A THRIVING OPEN ECOSYSTEM



Organization and governance are areas of primary importance in a rapidly evolving industry. At Ericsson, we empower secure and enriched sharing of resources, data and ideas across borders, sectors and cultures, through the same open mindset that has made mobile communications the world's most widespread technology.

By connecting vehicles themselves – and not just the drivers – they can share data and interact automatically in real time, reducing congestion and preventing accidents.

In the same way that our phones are no longer just for making calls, vehicles will undergo a huge transformation in the way we own, use and enjoy them. As vehicles increasingly become connected rolling software platforms, new connected services, business partners and ecosystems of developers are ready to grow with the potential of shared transport data, unlocking vast financial, environmental and societal value.

Find out more at: www.ericsson.com/industries

Ericsson is the driving force behind the Networked Society – a world leader in communications technology and services. Our long-term relationships with every major telecom operator in the world allow people, business and society to fulfill their potential and create a more sustainable future.

Our services, software and infrastructure – especially in mobility, broadband and the cloud – are enabling the telecom industry and other sectors to do better business, increase efficiency, improve the user experience and capture new opportunities.

With approximately 115,000 professionals and customers in 180 countries, we combine global scale with technology and services leadership. We support networks that connect more than 2.5 billion subscribers. Forty percent of the world's mobile traffic is carried over Ericsson networks. And our investments in research and development ensure that our solutions – and our customers – stay in front.

Founded in 1876, Ericsson has its headquarters in Stockholm, Sweden. Net sales in 2014 were SEK 228.0 billion (USD 33.1 billion). Ericsson is listed on NASDAQ OMX stock exchange in Stockholm and the NASDAQ in New York.

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