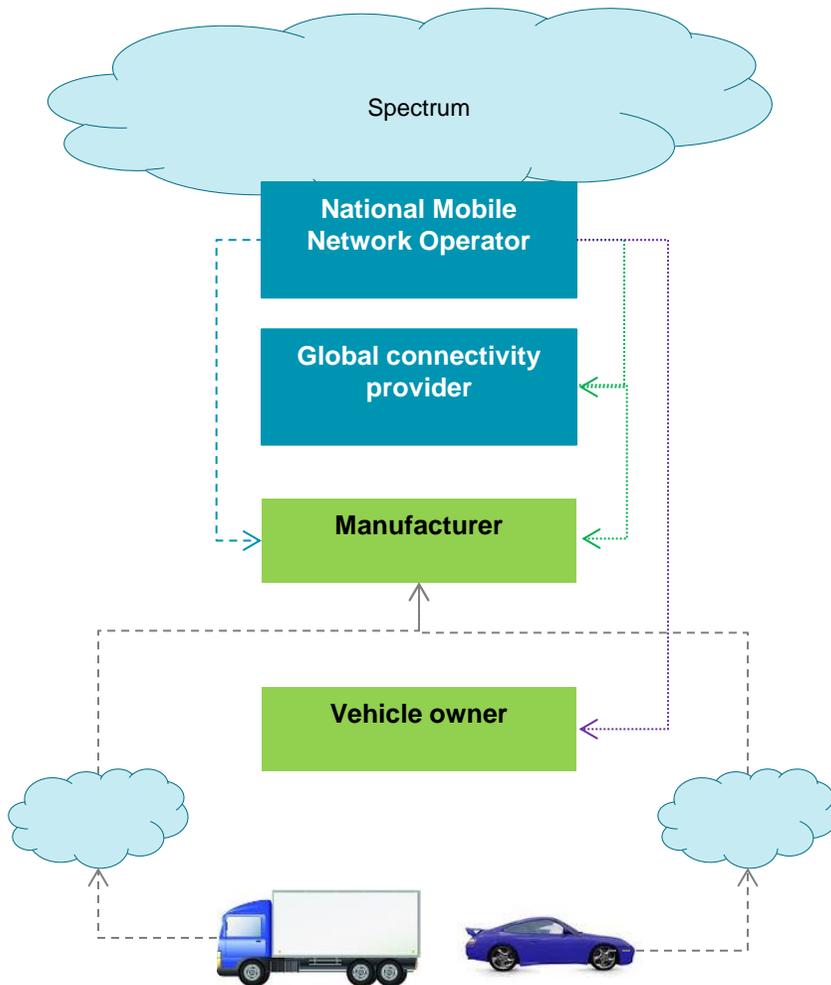


WOLF THEISS

*Supporting the international growth and development of
Entrepreneurial Businesses*

*Connectivity & M2M Regulations (looking at connected cars). A
new 2016 Proposed EU Electronic Communications Code*

Connected cars & connectivity



In common with most if not all technological developments, currently law and regulation is adapting and evolving to deal with the rapid advances in machine to machine (M2M) communication and connected devices.

The development of connected and autonomous vehicles is one of the areas that impacts a wide range of current laws and regulations. Regulatory issues that are evolving include the allocation of responsibility for compliance with traffic laws, insurance liability, ownership and use of the personal data that vehicles will collect from different drivers, and of course access to connectivity.

In Europe access to connectivity is complicated by the national nature of telecom and spectrum licensing and authorizations. For static machines and devices, this may not be an issue. But for truck fleets and car owners who travel across borders, vehicle systems need connectivity (at a reasonable price) in multiple countries. Further, depending on who will hold the customer relationship, will car manufacturers become telecom providers, and thus subject to communications regulations (including the storage of data, and customer care and billing obligations)?

This slide pack highlights some of the developing regulations applicable to connectivity of vehicles across different European countries: Access to spectrum; the role of the manufacturer and charging models; and European actions and cooperation in the field of connected and automated driving. It should be noted that this short pack does not cover many other important topics including network security, data protection and usage, and manufacturer v's operator liabilities.

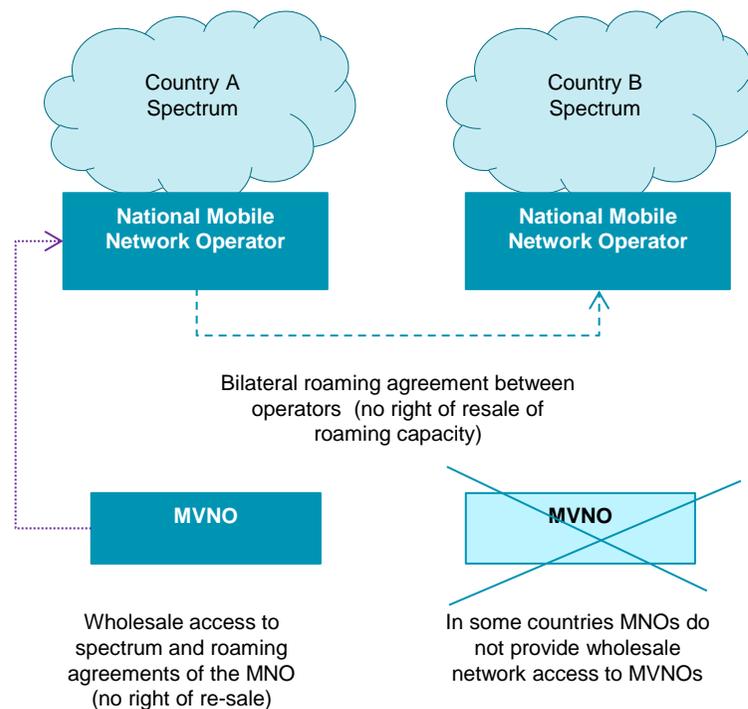
Access to spectrum & cross-border travel

Connected devices, and particularly connected vehicles require constant mobile data access. In the EU the conduit for that connectivity, spectrum, is licensed on a national level and, although there is certain harmonization for spectrum band usage, connectivity is provided by operators across different bands in each county.

Bandwidth: Connected and autonomous vehicles will require continuous connectivity across the entire geography of a country.

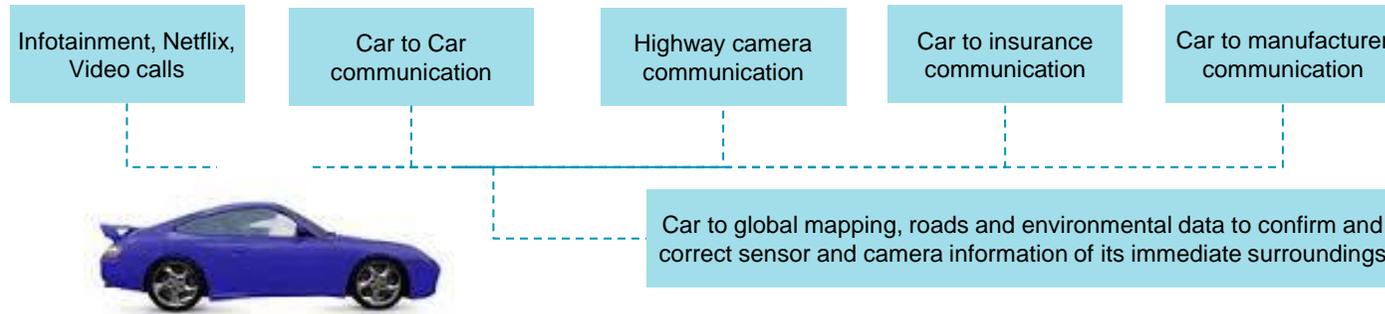
- Whilst 2G networks are sufficient for telematics, autonomous vehicles will require access to bandwidth that supports LTE (4G) and 5G. 2G networks often exceed 95% population coverage, although there may be gaps in geographical coverage, but no 4G network in Europe has - or is likely to have in the near future - full geographic coverage without government and policy action.
- Due to spectrum fragmentation and the need to re-farm existing 2G/3G spectrum, there is also currently no spectrum harmonization across Europe for the deployment of 4G or 5G. This presents device compatibility issues for connected cars moving across borders.

Wholesale Roaming Access: Until recently, the international mobile roaming market was considered to be sufficiently competitive that the terms & conditions of international roaming agreements between operators have been agreed bilaterally, on commercial terms. In general, almost all roaming agreements between the main Mobile Network Operators include commercial restrictions on the re-sale of roaming connectivity, thus restricting the ability of customers to agree Europe-wide spectrum access with their 'home' operator.



There are a number of third-party hubs that provide pan-regional roaming solutions for MVNOs: These are BICS, MACH, Syniverse, Comfone and TNS. Similarly, several of the large MNOs have joined forces to offer alliance solutions: These include the IoT Alliance (with KPN and Telefonica in Europe) and bilateral pan-European solutions with Vodafone (providing solutions to VW) and Telefonica (Tesla).

Should car manufacturers become MVNOs?



To date, manufacturers have, generally, not acted as wholesales of connectivity, but rather have themselves had the connectivity relationship with a Mobile Network Operator, charging their customers for the costs of providing in-car connectivity through an annual subscription fee. However, as data usage will inevitably increase - with estimates of 1GB of data per second used by autonomous cars - this model will be unsustainable. Alternative options already deployed include 'tethering' – pushing data through the customers' existing mobile device and connectivity plan. Yet, such systems are unlikely to be used for high-data requirements and autonomous vehicles due to technical incompatibility of end user devices, cybersecurity concerns, and unexpected customer costs, particularly when roaming.

As manufacturers develop more complex connectivity systems, there will be basic connectivity requirements for data to be transmitted and received between the car and other cars, highway cameras and global mapping and road data. The car will also become a mobile device itself for the viewing of streamed movies by passengers, information by drivers and the ability to conduct video calls. In such case, the vehicle manufacturer may itself need to become a Mobile Virtual Network Operator, a telecom provider using spectrum from a National Mobile Network Operator. There are advantages to this business model: the manufacturer will have a stronger bargaining position with Mobile Network Operators for spectrum access and management; it will control the connectivity packages and bundles that it offers to its customers; and it will control the customer care and billing, thus maintaining a high level of customer service. It will also come with obligations, including the need to register as an MVNO provider and to comply with telecom regulations and interception requirements. However, as the next slides show, manufacturers may be pushing against an open door when it comes to a new regulatory environment for connected and autonomous vehicles.

Regulatory actions in the EU to support M2M & connectivity

A new EU Electronic Communications Code

16 September 2016

On 16 September 2016, following over a year of studies, and the preparation of a comprehensive impact assessment, the EC Commission published a proposal for a Directive establishing a new Electronic Communications Code, which will amend the current EU Telecommunications Framework. Although many non-operator respondents wanted the Commission to go further than it has in promoting high speed mobile roll-out, the proposed Code introduces a number of important aims and provisions in relation to connected and autonomous cars:

Wholesale mobile network access: The proposals build upon studies regarding oligopoly and collective dominance and aim to provide necessary incentives for both network owners and competitors to make economically viable investments or co-investments in future networks that are capable of providing high capacity connectivity.

5G & Spectrum harmonisation: The proposals look to introduce enforceable rules for enhancing coordination of spectrum management in the EU for “ubiquitous connectivity” and the deployment of 5G, including authorisation conditions, harmonised spectrum bands, passive *and* active infrastructure sharing, spectrum sharing and coordinated spectrum management. There will be a peer review mechanism allowing BEREC (a European regulators group), the Commission and national regulatory authorities to review elements of individual Member States’ planned national assignment procedures which have more impact on market and business developments. One key policy objective set to national regulatory authorities is “the need to maximise connectivity throughout the Union and in particular territorial areas”

As well as connectivity developments, throughout 2016 there has been a lot of activity by Member States in changing regulatory frameworks to allow the testing and development of autonomous vehicles.

Autonomous Vehicles



On 14 April 2016, Ministers of EU Member States published a Declaration on Cooperation in the field of connected and automated driving including actions on interoperability and improved location accuracy from the use of GALILEO and EGNOS.



Amongst other states and many other legislative initiatives, Germany, France, the Netherlands and Spain have all enacted legislation to facilitate M2M communications and the testing of autonomous cars. On 15 June 2016, the German telecommunications authority issued new rules on the extraterritorial use of IMSI numbers for M2M services. The German government has also committed to review its road traffic laws to allow the testing and use of autonomous vehicles. In the interim, it is permitting testing on the A9 motorway. In the UK, where legislation already allows the testing of autonomous cars on public roads, the government has committed to review all relevant legislation including insurance and liability and privacy to position the UK as a legislative example in this area.



Our TMT work

Our TMT team works across CEE and has advised clients as lead counsel, pushing the boundaries of law in the region since the beginning of sector liberalization and the advent of technology law. We have led many landmark transactions, financings and privatizations in CEE and, for over 50 years, have successfully advised on intellectual property, technology and data compliance, internet law and market opening.

The emergence of the internet as the dominant communication infrastructure, the entry of new non-traditional market entrants, and new mobile technologies have created new business models and complexity. Accelerating investment into mobile and internet technology, connecting 28bn devices through the 'internet of things' and developing digital solutions in banking, healthcare and transportation are causing TMT business to reevaluate strategy and partnerships. Convergence of media and telecoms – content on any device – will continue. Partnerships between content and delivery providers will increase in number. On the technology side, there will be significant investment in the simplification and virtualization of IT architectures and carriers, with vendors and suppliers combining research in IT networks.

- **Extensive industry knowledge:** With practical industry experience we work strategically with clients to facilitate the negotiation and effective legal implementation of the optimum commercial position.
- **We understand your needs:** With national and international experience we take the time to sit down with management teams and employees to ensure understanding. Many of our lawyers have worked at senior levels for leading professional services, industrial and investment firms and are able to position legal requirements to facilitate compliance.
- **Regulatory support:** We advise on a wide range of transactions and matters requiring the support and consent of regulatory authorities and government. With unique expertise of supporting regulated industries and activities, we ensure compliance and security of obtaining regulatory consents and permissions.

INCUMBENT & MNO

Advising América Móvil, S.A.B. de C.V. ("AMX"), the leading provider of wireless services in Latin America, on its acquisition of approximately 21% of the outstanding shares in Telekom Austria AG



NETWORK & SPECTRUM

Advising LTE 4G operator Max Telecom on all regulatory & commercial issues for the conclusion of the first national roaming agreement in Bulgaria including advising on spectrum access and allocation.



CAPACITY & DATA CENTRES

Advising Hong Kong listed CITIC Telecom International as counsel in CEE for the acquisition of European carrier Linx Telecom's CEE and Central Asia business.

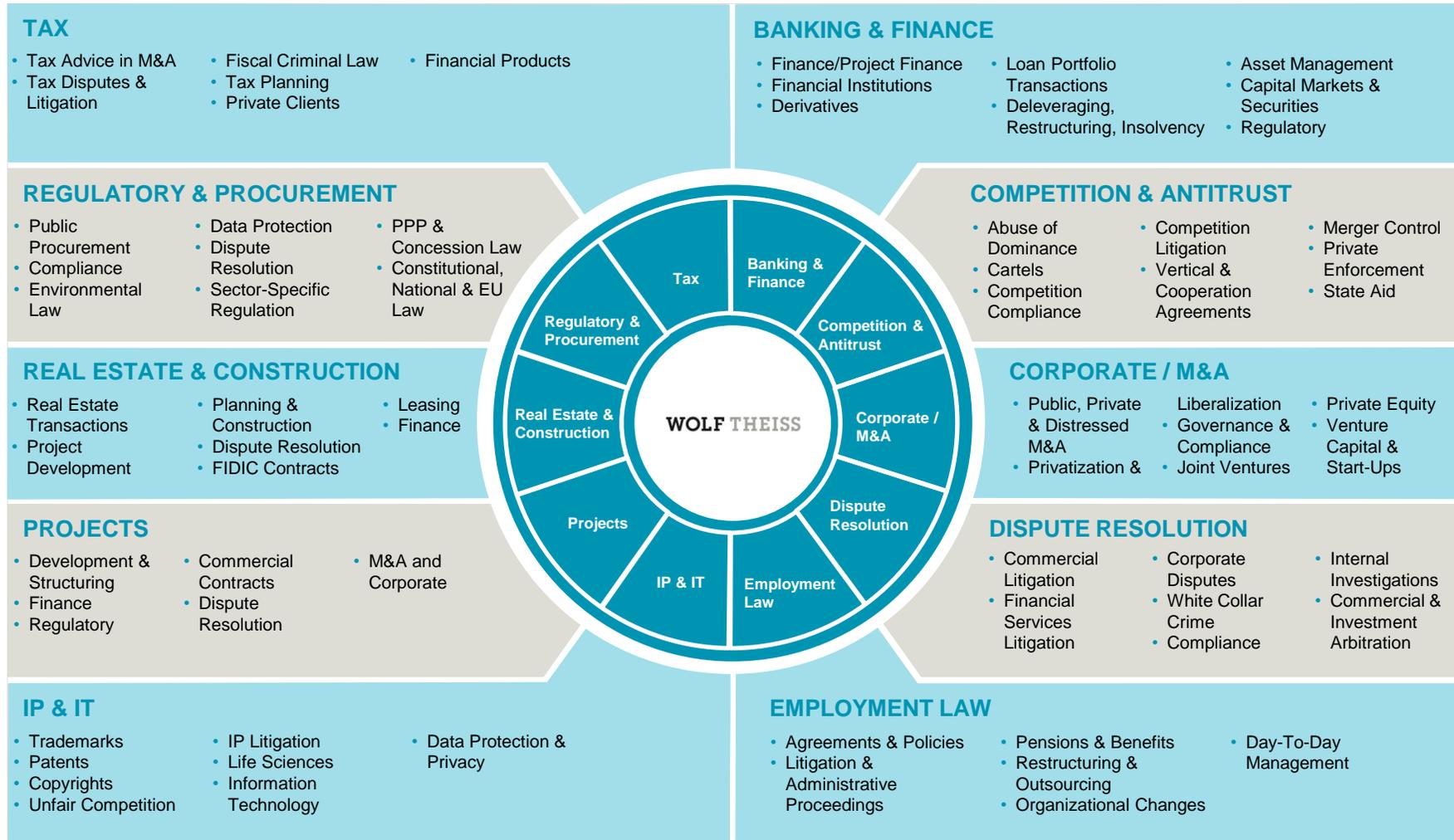


CLOUD & SERVICES

Advising Google on the contracting and roll out of cloud based applications including data protection, data security, and sectoral regulatory compliance



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Contact details

If you have any questions regarding **WOLF THEISS**, please do not hesitate to contact our experts:



Richard Clegg, Partner

WOLF THEISS

Schubertring 6

1010 Vienna

Austria

T +43 1 51510 5105

F +43 1 51510 66 5105

M +43 676 87 85 5105

richard.clegg@wolftheiss.com