

Mobile Communications: Infrastructure and Services

Definition: Mobile communications involves provision of services using wireless transmission. It includes mobile devices, spectrum, access and backhaul infrastructure, network interoperability, application and data availability, termination and roaming charges, and the technical, financial and regulatory considerations associated with optimising capital investment, competition, coverage and increasing levels of functionality and speed. It is focused on so-called “mobile networks”, but it is linked with other forms of wireless communications such as WiFi, Femtocells and the short range wireless networks being deployed to connect devices, sensors, health monitors, meters, black and white goods, cars and other consumer items, as part of the Internet of Things (IoT) and NFC.

Background/Context: Most mobile services are provided by national mobile operators, licensed to use specific spectrum for a fixed period. They usually pay an upfront fee and an annual charge following an auction or other method of spectrum allocation. Licence fees usually contribute to general Government funds, rather than communications infrastructure and the costs borne by each operator must be recovered from customers, through service charges. Consistent allocation of spectrum internationally, as new frequencies are made available, is a challenge, which requires close coordination between governments and regulators, through established agencies, such as the EU Radio Spectrum Policy Group (RSPG) and the ITU’s Radio Conference (WRC).

Operators offer services on a Pay as you Go or a contract basis to users, sometimes including the mobile device as part of the price, with flat rate charges for predetermined caps of usage (some are unlimited) and/or volume charging for traffic (more often for data, rather than voice or text). Some operators have tried to make exclusive deals with device providers in the past, as a means of capturing customers, but this practice is being progressively banned by regulation. Whilst some major operators own networks and licences in multiple countries, genuine international mobile service offerings are rare, with little competition for providing services to international businesses. Some low cost “data only” services are emerging for the IoT, reflecting its typically low volumes.

Interconnect agreements between fixed and mobile operators enable end-to-end connection, with roaming and termination charges, usually applying for originating and receiving communications. Progressive regulation in the EU has reduced both these charges with plans to eliminate roaming charges completely and harmonise terminations charges. Decoupling of roaming services and Local Break-Out (LBO) (a term used to refer to local provision of data services by a visited network operator) may exert competitive pressure on prices in the meantime. The needs of the SMEs in particular must be addressed in these changes. Other regions are beginning to follow, for example in, Africa, Australasia and the Gulf. Global roaming services are also being offered using WiFi hot spots.

Machine-to-machine applications (M2M) and connected devices such as cars, smart meters home automation and health monitors demand ubiquitous low bandwidth connectivity. These services occupy a diminishing 40% of traditional internet. Cellular connectivity and new services using unlicensed spectrum and “White Space”(frequencies allocated to a broadcasting service, but not used locally) are now being deployed by major infrastructure providers, rather than mobile network operators. Use of employee devices at work (BYOD) has progressed beyond the control of business owners and is known as “Shadow IT”. Businesses are using consumer technologies and the mobile environment must adapt its approach to service provision and charging radically. SMEs need to use the same device personally and for business. All business users need a mobile market which is profitable for operators to sustain investment, despite the threat of saturation, and balanced market shares to sustain innovation and competition.

BCS position on the key issues:

- **End-to-end connectivity/interoperability of networks, devices, applications and content**

Users must have the option either to choose their own devices, access networks, applications and content independently, or to choose to benefit partially or totally from various levels of integration between each component, provided there is the flexibility to switch a component at a future time.

- **Spectrum harmonisation, allocation, re-farming and licensing**

There must be more consistency in the method and outcome of spectrum allocation internationally. This will facilitate greater opportunity for access to applications and content across international borders, and the development of an environment more conducive to the creation and maintenance of competition in international mobile services. The UK Spectrum Policy Forum is fully supported by BCS who will participate in its activities, leading up to the World Radio Congress in 2015 (WRC-2015). The actions of the WWRF, ITU, WRC and other international bodies to achieve this should be supported actively through representations to Ofcom.

- **Elimination of roaming charges**

BCS believes that roaming charges should be reduced significantly, and ultimately eliminated. These charges deter use of mobile devices internationally, suppress implementation of online business applications and maintain economic inefficiency. Actions by the European Council, the Parliament and the Commission, and by ITU and OECD, should be supported by representations to Ofcom. Measures should be implemented to alert customers to potential costs, with caps on usage for individual users. Appropriate solutions for multi device business contracts should be devised. Customers should be able to buy roaming services separately from different operators. Operator blocking of WiFi handoff to overcome roaming charges and not spots must be resisted.

- **Reduction of termination charges**

Termination charges should be reduced and in some cases eliminated. They force new entrant operators to subsidise larger competitors, unless asymmetric regulated termination charges are applied. Charges are virtually zero in the USA. Actions by the European Council, the Parliament and the Commission to reduce and harmonise termination charges should be supported via Ofcom.

- **Avoidance of device and application exclusivity**

Exclusive deals between mobile network operators and device manufacturers create barriers to effective use of online applications and introduce linked sales, which contravenes general fair trading/sale of goods rules. Blocking specific applications on specific networks is anti-competitive and restrains trade. If necessary, such arrangements should be prevented by suitable regulation.

- **Minimising and elimination of “not spots”**

We consider access to mobile communications, like access to broadband, to be an essential service for participation in society, for security and for business development. It is hard to justify investing in difficult to reach areas for one operator, and cannot be justified for multiple operators. Access infrastructure sharing should be required, and operators should allow customers of other networks access. The long-term strategy for mobile operators needs to move from competing on coverage to competing on end-to-end service value, including all aspects of quality and not just coverage.

Customers currently suffer both from Not Spots and inadequate backhaul. BCS believes future smart cities will need local Government planning and ownership of infrastructure. The device diagnostics customer application provided by one UK operator to indicate quality of service in real time (including back haul) is. BCS believes this data should be collated by Ofcom.

- **Enabling of switching by end consumers and businesses**

Users must be able to switch mobile service provider effectively and efficiently with minimum disruption to usage. This includes, but is not limited to, number portability and historical records.

More appropriate solutions should be available for business customers with multiple devices,

- **Creation of competitive international service provision**

The mobile communications environment is built on connected islands of national service provision and prevents effective usage by businesses, and virtually eliminates the possibility of competition.

The allocation of spectrum, decisions on ownership, and licensing should be geared to enabling international service provision and competition, especially throughout the European Union.

- **Meeting the needs of business customers**

Service development has been largely driven by the mass-market single device consumer within a single country. The managed mobile services now offered by BT, Vodafone, O2, EE and others in the UK are a positive move to overcome past neglect of the business customer and are welcomed. Service offerings for users with large numbers of mobile devices internationally are still needed.

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