MODULE 5

OPERATOR DISINCENTIVE AND IMPEDIMENTS

CROSS-SECTOR INFRASTRUCTURE SHARING TOOLKIT
5 Operator disincentives and impediments

249. Telecommunications operators also face disincentives and impediments to entering into sharing arrangements with infrastructure owners. These disincentives and impediments often reflect the impact of the institutional restraints and shortcomings of infrastructure owners in pursuing sharing opportunities. They can also be exacerbated by the unfamiliarity of telecommunications operators with the regulated utility culture. Modules 6 and 7 suggest steps which may be taken by policymakers, lawmakers, regulators and development institutions to provide better incentives and remove impediments for optimal sharing.

5.1 No clear path of engagement with infrastructure owners

250. The initiation of a cross-sector infrastructure sharing arrangement does not depend on the infrastructure owner. Indeed, telecommunications operators, who stand to realize significant cost savings in deploying and expanding their networks, have historically initiated the dialogue with infrastructure owners. However, these dialogues only go so far unless the host infrastructure owner is institutionally predisposed to such arrangements and all other conditions for sharing have been met.

251. Telecommunications operators who have attempted to initiate a dialogue about sharing opportunities often report frustration due to lack of a clear path of engagement with the infrastructure owner. Within the infrastructure owner’s organization, unless it has previously embraced infrastructure sharing on a strategic scale, there is typically no designated individual with overall responsibility for infrastructure sharing. There is no shingle hung out to offer infrastructure sharing, and no clearly appropriate point of contact. The absence of these simple things can be significant in deterring engagement.

252. When approached by a telecommunications operator, senior management of a utility which has not established plans for infrastructure sharing may be caught off guard and unable to give an official response. Referrals of queries to the infrastructure owner’s internal communications unit often do not yield a business proposition which has the backing of senior management or which is within a utility’s approved financial means. Management of the utility’s internal communications unit also sometimes view telecommunications operators who request access to the utility’s infrastructure as competitors for use of their facilities. Their response can be cold unless senior management has articulated that infrastructure sharing is a strategic focus of the utility.

253. In addition, where planning activities of the infrastructure owner (such as the installation of new infrastructure or the rehabilitation of existing infrastructure) create windows of opportunity for more economical infrastructure sharing, telecommunications operators would not be in a position to initiate discussions if this information is unknown and unavailable to them. These opportunities will be missed unless the utility opens an infrastructure sharing or joint use department which is empowered and motivated to identify and pursue joint use opportunities.

254. While a legal mandate to share infrastructure may open the door to dialogue, it often will not sufficiently overcome the underlying disincentives and impediments to lead to an optimal level of infrastructure sharing. Access requests may be referred to the utility’s legal department rather than its communications department, but the response may still be cold and unwelcoming.
255. Even where a clear path of engagement with the infrastructure owner exists, telecommunications operators report frustration with the slow pace at which infrastructure owners move forward. The operators come from the context of a highly competitive market where significant decisions must be made and executed promptly. In contrast, the infrastructure owners come from a culture of long-term planning and risk aversion. Even when infrastructure owners are prepared to move ahead, they often must navigate a lengthy process of internal governance approvals, regulatory approvals and public procurement review.

256. Unless a utility engages telecommunications operators early about a potential sharing opportunity, more often than not the operators will build their own infrastructure, either because they are not aware of the opportunity or because they cannot than wait for the utility.

5.2 Limitations on infrastructure owner’s land use rights

257. Since the inception of telecommunications in the mid-Nineteenth Century, land use rights have presented a threshold challenge to telecommunications operators seeking to deploy or expand their networks. Linear infrastructure by its very nature crosses a country’s land mass in corridors dedicated to the use of the host infrastructure. Locating commercial telecommunications facilities on host infrastructure within existing corridors is intuitively more efficient and reduces environmental impact. However, land law does not necessarily recognize these efficiencies, and telecommunications operators must have sufficient legal rights to acquire access to existing corridors and, where necessary, to establish their own corridors.

258. Sometimes an infrastructure owner has exclusive rights over a corridor, such as a road authority’s rights to control the use of a road reserve, but other times an infrastructure owner may only have non-exclusive rights over a corridor, such as an electric utility’s or pipeline owner’s rights under easements running across public or private lands. In the latter case, though the legal nature of the infrastructure owner’s rights of use of the corridor may vary across and within jurisdictions, these rights generally include the right to clear and grade the corridor, the right to install, operate and maintain specified improvements and fixtures for specified purposes within the corridor, and the right to quiet enjoyment through the exclusion of incompatible uses. All residual rights in the corridor are retained by the underlying landowners. Thus, for example, an electric utility with rights of way in a corridor which crosses farmland may have the right to exclude farmers from erecting buildings inside the corridor, but not to exclude the cultivation of crops or establishment of irrigation ponds under the power lines.

259. Developed countries have addressed these needs by affording telecommunications operators with privileges of access to public rights of way and the power of eminent domain (compulsory acquisition) to acquire easements over private land on payment of just compensation to the landowners. In many developing countries, when the original telegraph and telephone networks were built, land rights were less of an impediment because the networks were often built, owned and operated by organs of the state or state-owned enterprises. Even in recent decades, when investor-owned operators entered developing markets to build, own and operate mobile networks, land rights were also not a prerequisite to network deployment because the new entrants did not need lateral corridors for their wireless networks.
260. However, since the 1990s, land rights issues have resurfaced in developed countries where telecommunications operators have piggybacked on the easements of railways and electric transmission utilities but did not obtain separate easements from underlying landowners. As mentioned in Introduction section, the right to allow such overlapping uses may not be entirely vested in the owner of the improvements and fixtures in the corridor – or at least the rights of the infrastructure owner in this regard may not be clear. The owner of the improvements and fixtures will usually have the negative right to disallow incompatible uses, but may not have the positive right to allow compatible ones. This depends on the nature and scope of the infrastructure owner’s land use rights to the corridor. Those rights are usually less than full ownership, and some other actor often has residual rights in the land traversed.

261. These issues did not arise until recent decades, even though they have likely persisted since the inception of telecommunications. This can be attributed to the growing sophistication of landowners and the legal system in developed countries. For over a century, telegraph lines shared rights of way with railroads. While there was much attention given to the grant of rights by the railroads to the telegraph companies, little or no attention was paid to whether any permission was required from the underlying landowners. This absence of conflict appeared to change in the mid-1980s in the United States, when cable television companies began installing overlapping networks along private roads and stepped up a few years later when long-haul fiber optic networks were installed along railways and electric transmission lines. The sleeping rights holders awoke and began asserting their land rights.

Box 14: Multiple layers of rights in the land

The use of railway rights of way for buried fiber optic cable has been the subject of extensive litigation over scope of rights to use easements throughout the United States for nearly two decades.

One United States federal court described these developments in a 2012 report of litigation over use of railway rights of way to host fiber optic cable owned by telecommunications operators: “This case concerns Maine’s part in a nationwide phenomenon in which telecommunications companies bargained with railroads for the right to place fiber optic cables through rights of way owned by the railroads. In the 1990s, owners of property underlying the railroads’ rights of way began taking action against what they perceived to be trespass by the telecommunications companies on their property. Whether or not there was a trespass was informed by the grant of rights to the railroads, which often did not include a right to use the right of way for non-railroad purposes. In some cases, the right of way may have even lapsed through disuse and all rights once owned by the railroad may have reverted to the owners of the fee underlying the right of way. . . . Decades of litigation in numerous jurisdictions involving various railroads and telecommunications companies ensued.”

262. With the rising need for fiber to support mobile operator backhaul networks, access to public and private land has also increasingly become an issue in developing countries. Access to public rights of way is often unclear or limited, and was not necessarily included in the bundle of rights and privileges afforded to mobile network operators under the telecommunications laws or their

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licenses. In addition, in many instances, investor-owned mobile operators in developing countries do not enjoy rights of eminent domain over private land, or such rights are required to be exercised through a public authority which may not be particularly interested in the mobile operator’s timetable or business needs or may not wish to be seen to be favoring one participant in a competitive marketplace. Thus, mobile operators in some developing countries are now discovering that they do not have the rights they need to acquire access to public and private land corridors.

263. These limitations on telecommunications operator land use rights in both developed and developing countries can thus present impediments to their taking full advantage of piggybacking on existing utility infrastructure. If the scope of the land use authorization held by the infrastructure owner does not include the right to install and use commercial telecommunications facilities, then the telecommunications operator will require additional rights, from the person who owns or controls the corridor or the lands it traverses, in order for the operator to install or operate commercial telecommunications facilities (or to convert excess fiber owned by a utility to commercial telecommunications use). In some instances in countries which recognize broadly dedicated public utility easements, the telecommunications operator may already possess such rights independently of the infrastructure owner by virtue of holding a license to provide public telecommunications services. But such occasions are rare.

264. In many cases, the telecommunications operator must obtain independent or additional authorization from the party with control over the residual use of the land corridor occupied by the owner of infrastructure improvements and fixtures. Thus, while a utility may have secured its right to use land for its purposes under legislation applicable to its sector (e.g., electricity, water or rail transport), or through voluntary or compulsory acquisitions of easements from private landowners, the telecommunications operator may effectively have to start all over again to obtain the necessary incremental land use rights for commercial telecommunications facilities. This may be the case even if those facilities are integrated with the facilities of a public utility operating in another sector.

265. Where the owner of the improvements and fixtures in a corridor does not control the land use rights in the corridor, the process of obtaining rights of use for a telecommunications operator is sometimes referred to as perfecting the right of way to allow its use for commercial telecommunications facilities. Depending on the circumstances and the legal and regulatory framework, either the owner of the infrastructure improvements, the telecommunications operator or both may need to lead the process of perfecting the rights of way.

266. The process must begin with mapping the corridor to be shared and, through land records or information in public view, identifying the person or persons who own or have authority over the uses of the land in the corridor. As a further complication, if the infrastructure owner is or once was a state-owned enterprise or state organ, it may not have complete or adequate records of the rights it does have in the land corridors traversed by its infrastructure. This makes it difficult to ascertain what rights it can convey to the access seeker and/or to identify the underlying parcels so that residual landowners can be contacted. Even where the infrastructure owner has complete land records, they often speak as of the date its easements were acquired. While these records can reveal the extent of rights held, they are frequently not adequate to enable contact with the underlying landowners due to the likelihood that some parcels may have changed hands many times in the interim. The infrastructure owner and telecommunications operator will need to search
the land records or make site visits to establish current ownership. This can be a time-consuming, costly and daunting process.

267. The set of actors with underlying rights over land corridors, in addition to those held by the owner of infrastructure improvements and fixtures, may include:

- national or local government ministries or authorities in the case of public lands, particularly road reserves;
- a chief or similar tribal authority in the case of traditional or tribal lands; and/or
- private landowners in the case of private lands.

268. The rights of the land owner or controller, and the process and substantive rights for perfecting right of way, will differ for each type of landowner or controller.

269. Public lands, including road reserves, typically afford the telecommunications operator the greatest certainty of the ability to perfect its rights. But the process may nevertheless present significant bureaucratic hurdles and significant unanticipated costs. Roads authorities or municipal governments have a variety of legitimate reasons to require all users of public rights of way to be properly authorized. Among these are ensuring that all works (whether installation, modification or maintenance) do not adversely and unnecessarily impact traffic flows, that they do not endanger public safety or health, that they are for public rather than private purposes, and that they are not incompatible and do not interfere with other existing or planned uses of the rights of way. In addition, joint use of public rights of way can be a source of revenue for roads authorities or municipal governments, so the permitting process provides a basis for registering the user and ensuring that the user thereafter contributes any required fees or other charges. On the other hand, authorization to use shared public rights of way can protect the telecommunications operator by affording it rights against other users of the rights away.

270. The ability and cost to secure a telecommunications operator’s rights of use of a corridor over private lands is more difficult to generalize. Very much depends on the law of the jurisdiction in which the corridor is located and the existing easements or other rights of the utility which owns the existing improvements or fixtures to be shared with the telecommunications operator.

271. The telecommunications operator may be able to secure rights of use of the land in the corridor under the telecommunications legislation applicable to access to land or through its own voluntary or compulsory acquisitions of easements which overlap those of the utility. Quite importantly, the telecommunications operator may in some cases have to pay additional compensation for such additional rights of use. The incremental compensation payable for an additional use of an established corridor is usually much less than it would be for the acquisition

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3 As used in this discussion, traditional or tribal lands refers to lands recognized as being under communal control of indigenous peoples rather than under the dominion of the sovereign government or private ownership. Because land corridors used for intercity and international links often traverse large swaths of countryside, they occasionally must cross through traditional or tribal lands. Examples of this category of land rights can be found in many countries and in every continent. For example, tribal and communal land rights are common throughout sub-Saharan Africa. In North America, both Canada and the United States recognize Indian Reservations as separate quasi-sovereigns with their own dominion over land ownership and use within the borders of these countries. In South America, Brazil recognizes the concept of “indigenous lands” (Terras Indígenas) and the Constitution confers to “Indians” having possession of lands that they traditionally occupy and where they live on a permanent basis. In Europe, Norway recognizes certain land rights for the Sami, an indigenous group living in the north of the country. In Asia, India recognizes 461 ethnic groups as “Scheduled Tribes” that have rights to land and self-governance. Australia recognizes the concept under the Native Title Act 1993, which affords Indigenous Australians certain communal rights in native lands. These are but a few examples, and a full listing is beyond the scope of this work.
of a new corridor. Typically, the utility’s existing authorizations have stripped the landowner of 90-95% of the value the land may otherwise have (and for which the infrastructure owner or its predecessor would likely have paid compensation to the current landowner or its predecessor). The incremental use sought by the telecommunications operator is thus likely to require payment of compensation, if any, which is significantly less than the value of surrounding land. In addition, if the telecommunications operator only requires a narrow path within the corridor, the land use rights required may be even less expensive.

272. In the best scenario, the telecommunications operator will have a statutory right of compulsory acquisition of an easement upon payment of fair and reasonable compensation to the underlying landowner. Armed with such a right, the operator can usually negotiate a voluntary arrangement with most underlying landowners. Still, a telecommunications operator must secure its own land use rights in the corridor before installing any new facilities or beginning to use any shared existing facilities (even dark fiber) to provide commercial telecommunications services, and a single holdout landowner along a lateral right of way can block or delay an entire network.

273. The process of seeking and obtaining these rights, which may require administrative or judicial proceedings, can lead to significant delays before works or use may lawfully begin. The details will be very context-specific and depend on the constitutional and legal framework, as well as prevailing practices, for land use in a particular country. For example, in many countries, the telecommunications operator will need to ensure that it secures necessary traditional or tribal land rights. Such rights may not be easily determined by a standard search of land records, requiring more extensive due diligence through route surveys and interviews. In some instances, there may be conflicts between land records for private property and claims by the occupiers of traditional lands. These unresolved issues may seriously impact the ability of a telecommunications operator, especially if owned by private investors, to perfect title. Lacking the prerogative and backing of the state, the operator may have to abandon its plans to cross the disputed lands. Despite the differences across countries and jurisdiction, the need for the telecommunications operator to ensure it has sufficient land use rights is universal and fundamental.

274. However, where the operator’s rights are more limited, perhaps only allowing use of private property with permission of the owner, the telecommunications operator may not be able to assemble end-to-end rights in a corridor which crosses lands of multiple different owners. One recalcitrant landowner can block the entire project or extort unreasonable compensation from the operator. There may simply be no recourse in such circumstances and the operator may be forced to abandon its plans to use part or even the entire particular corridor, or may be required to change its proposed route. In such circumstances, the operator may fall back on plans to use public rights of way, but this may foreclose the planned use of a more efficient route (such as following a railway or pipeline) or existing infrastructure (such as excess dark fiber in an overhead electric transmission line).

275. Apart from casting a cloud over the infrastructure owner’s ability to convey to the telecommunications operator good title to the rights to use the shared infrastructure improvements and fixtures, the topic of land use rights also often presents a sticking point in negotiations between the infrastructure owner and the telecommunications operator. Understandably, the infrastructure owner does not want to assume the risk or burden of perfecting rights of use in the underlying land corridor. Conversely, the telecommunications operator may balk at paying for rights to share infrastructure unless the owner can assure that these rights are sufficient to avoid the requirement to pay third parties for use of the corridor. Better understanding of these land use issues, together
with effective legislation to extend compulsory acquisition rights to telecommunications operators, are key to overcoming these challenges. Appropriate land use legislation is discussed in Submodule 6.2.

5.3 Reliability of the operation and maintenance of the infrastructure

276. Telecommunications operators require a high standard of reliability for wholesale infrastructure and services that are key inputs to their retail services. For example, for backbone transmission networks, telecommunications operators routinely require contractual commitments of at least 99.9% service availability, requiring bandwidth management equipment and skilled staff to operate the network and respond to outages 24x7x365. The utility’s ability to deliver this quality of service, and to deploy routes quickly in response to the rapidly evolving needs of telecommunications operators, will require a commitment to a significant level of fixed costs, including both upfront capital investment and recurring fixed operating costs, which must be incurred or contractually committed before signing any customers. For this reason, many utilities are not well-positioned to pursue the business model of providing telecommunications services over networks that use their infrastructure. Where they nonetheless are convinced to do so, but lack the financial means or commitment to build a sufficiently robust organization, their apparent inability to deliver may impede the interest of telecommunications operators in cross-sector infrastructure sharing. Financial failure may result.

277. This has led many utilities to pursue the approach of commercializing dark fiber as discussed in Submodule Error! Reference source not found. rather than entering the wholesale telecommunications services markets directly. Most utilities have a fairly reliable track record of reliability for dark fiber, and this business model is typically readily embraced by telecommunications operators.

278. Still, some utilities have inherently more reliable fiber infrastructure than others due to the nature of their core business and the location of the fiber. For example, the risk of service outages of OPGW fiber is extremely low due to the highly secure nature of the cable, which is located in the electricity space on the transmission towers. In contrast, fiber installed on distribution poles is much less secure because it is underhung below the power lines, and can be damaged by wind, accidents, vandalism and theft. The reliability of fiber on distribution poles therefore may or may not compare favorably to the reliability of buried fiber along the same route. For this reason, utilities are generally not well-advised to install their own fiber on distribution poles unless there is a compelling core business need to do so. Otherwise, the better business model is usually to allow telecommunications operators to install their own fiber, via pole attachment rights, and to bear and manage the risk themselves.