

- **Videotelephony for remote consultation and training.** The greater upload speeds of broadband facilitate easier two-way communication. Videotelephony can be used both to aid remote diagnosis and in teaching local care workers, who may have little or no previous training, in order to improve the standard of on-site treatment.
- **Greater security and privacy.** Using broadband, full medical records could be accessed and updated remotely, while confidentiality was preserved by the use of encrypted data transport to protect information from interception and alteration.

Wireless broadband, delivered via cellular networks or by point-to-point microwave technologies such as WiMAX, allows for increased mobility and opens up the opportunity for mobile healthcare workers equipped with appropriate intellectual resources (patient histories, communication with consultants and specialists, video-based training and references). In this way, the medical cover of relatively remote municipalities could be improved. Remote consultations not only improve availability, but also reduce costs – particularly travel costs – as indicated in the case study below.

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#### **The Ontario Telemedicine Network uses broadband applications to increase coverage and reduce travel costs**

Ontario Telemedicine Network (OTN) integrates several communications networks to provide secure and confidential telemedicine services to patients and healthcare providers in the Canadian province of Ontario. As the second-largest province in the country, Ontario has a population density of approximately 13.9 people/km<sup>2</sup>, which is lower than that of many African nations and comparable with that of Argentina. Consequently, the distance that patients must travel to receive specialist treatment can be significant.

The bandwidth connectivity that OTN uses for videotelephony takes many forms, from networks dedicated to the health sector (such as e-Health Ontario) to public Internet connections and WiMAX. The minimum data rate required for its videoconferencing application is low – 384kbit/s – and by overlaying VPN architecture it can make secure use of whatever broadband connection is available.

According to the company's official figures, the organisation operated 661 sites at the end of March 2009, connecting over 2700 healthcare workers in fields including mental health, internal medicine, oncology, surgery and paediatrics. Almost 54 000 'clinical events' (videotelephony sessions related to treatment), and a further 9000 events for educational purposes, were logged over the year to the end of March 2009. According to OTN, 36.5 million kilometres of medically related travel by the patients and health workers of Northern Ontario was saved as a result of the broadband-enabled telemedicine service.

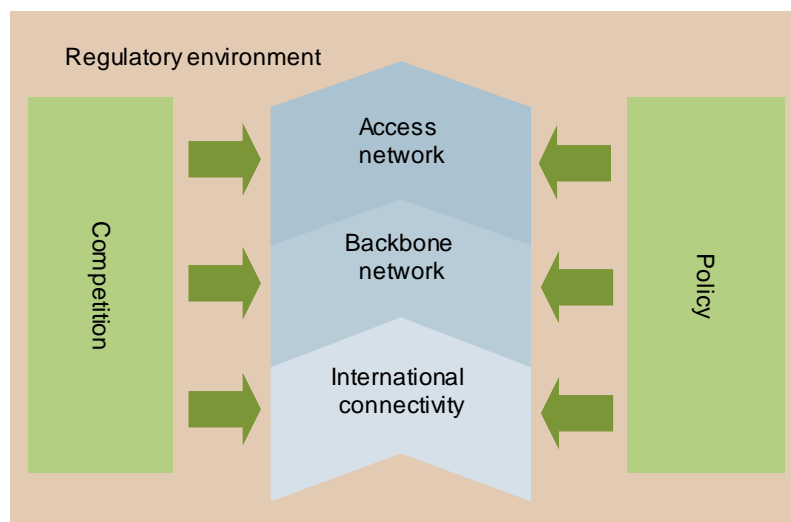
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A variant of OTN's model can be applied to healthcare in emerging markets. Where broadband connectivity was scarce, WiMAX could provide connectivity from local centres back to larger hospitals, as the bandwidth of WiMAX would be adequate for the relatively light overheads of the service. The introduction of such systems could lead not only to cost

## 2 Supply-side issues must be tackled for affordable and widespread broadband access

Developing countries stand to benefit in a number of ways from access to broadband services, although often there are many obstacles in the way. On the supply side, the problems mainly relate to telecoms market policy. This chapter considers the chief supply-side issues, as illustrated in Figure 2.1.

**Figure 2.1:** Supply-side issues affecting broadband adoption in developing countries  
[Source: Analysys Mason, 2009]



The two main issues that prevent consumers from being supplied with affordable broadband services are as follows.

- The consumer may not be able to access broadband services because of lack of coverage.
- The price at which end users are offered broadband access may be high because of abuse of SMP at one or more points in the supply chain.