

In the software area, there is substantial local capability in certain sectors, including graphics, virtual reality, games, entertainment, and education. In education, for example, one British company, Europress, has rapidly carved out a two-thirds market share.

British companies have been among the leaders in the rush to develop the network computer (NC) for the Internet. An offshoot of Acorn Computers, based in Cambridge and owned by Olivetti of Italy, is supplying chips for a number of designs, including Acorn itself. However, another British company, HDS, claims to be the first company in the world to have an NC available.

In the telecoms sector, early liberalization of the U.K. telecoms market has led to a well-developed and competitive market for both products and services. The U.K. was the first country to license personal communications networks, based on digital DCS1800 technology. These network operators have been innovative forces in the mobile market.

The existing analogue cellular networks are due to be closed down by 2005. Cellnet and Vodafone, the two operators, are moving their subscribers to digital global systems for mobile communications (GSM) as fast as they can. Currently in development are so-called dual-mode digital GSM handsets, operating at existing 900 MHz frequencies as a conventional mobile and at 1800 MHz frequencies as a cordless phone in the office or at home.

## Barriers to Entry

*Computer Hardware, Software, and Services.* With few barriers to entry, competition is intense. Just how intense was indicated by the fall of Escom – the (German-owned) largest PC retailer in the U.K. – into receivership in July 1996.

Any equipment must meet European standards for electrical safety and radio frequency interference and electro-magnetic compatibility. The equipment must also carry a “CE Mark” to show that it may be legally offered for sale.

The major barriers usually are: overcoming local conservatism and modifying the product or

service to meet local market requirements, in business or cultural terms.

It should be noted that the Apple Macintosh has a much smaller market penetration than in North America and any product or service which is Macintosh platform-specific may be more difficult to sell. Similarly, in the education sector, hardware platforms have historically not been industry-standard, making this a sector a little more difficult to penetrate.

Marketing major systems to government or large commercial clients may require companies to have ISO9000 quality registration and the associated IT standards such as “TickIT.” The latter scheme originated in the U.K. and has since been adopted by a number of other countries, including Australia. The scheme is based on international ISO9001 and is designed to improve the quality management of software development.

*Telecoms/Datacoms Equipment and Services.* Similar comments apply to telecoms. In addition, most telecoms and datacoms equipment is required to be tested and approved, prior to going on sale. The standards against which equipment is tested are in the final stages of becoming pan-European. Approval for the U.K. will in most cases lead to automatic approval throughout the EU. It should be noted that European standards in most cases are different from North American ones. It cannot be assumed that testing and approval will be just a formality.

Any equipment utilizing radio frequency spectrum will come under particular scrutiny. Allocations in the U.K. and Europe are not always the same as North America, and a shift of frequency may be required. The responsible government department is the RadioCommunications Agency. However, significant opportunities exist in radio as the U.K. has taken a lead in issuing new spectrum and licensing innovative services.

Telecommunications services are licensed by the Department of Trade and Industry in cooperation with the Office of Telecommunications (OFTEL) and the Independent Television Commission (ITC) in the case of cable and terrestrial TV.