

KNOWLEDGE CREATION IN TELECOMMUNICATION SERVICES

Fernand Amesse*, Caroline Boivin** and Pierre Mohnen***

* HEC, CIRANO

** Concordia University, CIRANO

*** Université du Québec à Montréal, CIRANO

Summary

Our objective is to examine research and development (R&D) and knowledge creation in the telecommunication services industry. This review helps us in finding out which models of R&D management take shape in this industry. We analyse the activities of North American players – including Bell Canada Enterprise (BCE) – as well as the European companies France Telecom and British Telecommunications.

Our analysis of R&D pays as much attention to internal R&D as to external sources of knowledge acquisition. We also keep an eye on the potential interaction between internal and external sources of knowledge. We note the emergence of a new model of R&D organisation in this industry. After a period of monopoly and integration of telecommunication equipment producing and service provision under one roof, followed by a period of deregulation during which the divested monopolies operated in a pretty protected environment, where equipment manufacturers and service providers still collaborated, we now witness increased independence of both segments of telecommunication, increased privatisation and a trend towards worldwide competition.

In this new environment, vigorous competition and major technological developments have blurred the traditional division line between telecommunication, television, and computer services. Telecommunication service companies are looking for a new model of R&D organisation. All are on the lookout for new ideas and do the same kind of R&D. They all patent, with some differences in geographical patent locations. They often collaborate in large networks for the adoption of standards. All keep an eye on whatever knowledge is available outside while doing their own R&D. What distinguishes the players is not really their choice for a completely internal or external way of knowledge accumulation, but the balance between internal and external knowledge sourcing.

Three groups of firms emerge and can be distinguished by their strategic choice between internal and external knowledge acquisition. The large firms, the leftovers of the former monopolies (like AT&T, British Telecommunications and France Telecom) have a well-organised continuous R&D program, with a critical mass of in-house researchers. While doing their own research, they establish links with universities to do their basic research, they open laboratories in the Silicon Valley to do technological intelligence and scanning and they invest in venture capital. The second group encompasses firms such as Verizon and SBC that rely both on internal and external sources of knowledge but on a smaller

scale than the firms in the first group. These firms collaborate with suppliers and competitors and take part in venture capital projects. Firms from the third group essentially have a strategy of knowledge outsourcing. This group includes Bell Canada, Telus, Qwest (and USWest), BellSouth and WorldCom, where there is little or no internal R&D and small university programs have been established. For these firms, technology-driven mergers and acquisitions can play a crucial role, as for WorldCom, and R&D has basically no other purpose than to facilitate the integration of technologies developed by equipment manufacturers.

