



## About the vertical integration of network services

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With the emergence of the open network paradigm, it is expected that the strategies of the telecommunications operators and of the software producers will be jointly guided by the dynamics of the interactivity between the supply and the demand, which is promoted by the vertical integration of services that embrace the integration of different and complementary functions on the same distribution network.

The software producers are developing more mobile solutions, which are increasingly integrated in the services offered through the different telecommunications networks. In turn, the strategic conducts of the telecommunications operators reveal an increasing articulation between the upstream vertical integration of physical activities and the downstream vertical integration of services, which have implications in terms of pricing and the introduction of new services.

Furthermore, the operators offer packaged tie-in sales based on two-part tariff schemes, which implies the obligatory subscription to one basic service together with technology-related services. These services are usually implemented through a common platform (e.g. wireless, digital, cable or copper networks), using compatible software that is easily accessed by the users.

However, the operators can increase the first part of the tariff, which includes the installation rate and the modem or the top box. If so, this justifies further regulation of discriminatory price schemes and of the admission conditions to the market, for both new operators and consumers.

In a recent study applied to the two most representative Portuguese Cable Television Operators (which is a part of a Doctoral Thesis in the field of Economics of Networks), we analysed the economic rationale for the operators to proceed to a partial covering of the national market, in order to prevent the pressure for a price decrease.

In this sense, a regulation proposal was also presented to guide future interconnection agreements for the broadband Internet service providers, advocating price caps for the interconnection tariffs in order to guarantee more equity in terms of the access to this kind of service offered through the cable network.

In the development trajectory of the cable television networks, two driving forces were also detected. On the one hand, the supply (push) contributed to the enhancement of the basic

cable demand, assuming a special importance in the network of high density. On the other hand, the demand (pull) intensified the introduction of new vertically integrated services, currently having a bigger impact over the network of less density. The former driving force implied the development of a constant mechanism of innovation, which lead to faster introduction of new services that were increasingly demanded by the more informed consumers.

We found out, in both cases, that the vertical integration of services had a negative impact on price. This result confirmed that premium integration (as it happened with the current one) had a negative effect on the price of the basic service. In this sense, the operator which practiced vertical integration with premium activities, had an incentive for diversifying premium services, and for stimulating the demand for this kind of services through the offering of smaller basic packages and by making use of lower prices.

This strategic conduct was accompanied by the simplification of the access schemes to vertically integrated services, such as interactive television, and also the third generation mobile phones (3G) that link sound (MP3) and the video (wave files) in the form of multimedia messages (MMS).

In the two case studies, the penetration rate and the demand for the basic service presented a positive relation. However, the penetration rate assumed a greater importance in determining the initial basic demand. We also have to stress the contribution of the supply (push) to increasing the demand of network services, which was ratified by the importance of increasing the network density (during the initial process, covering the release and expansion phases) for determining the increases in the price of the basic service. In both cases, the dynamics of the basic demand for promoting even more vertical integration of services (including premium services, interactive television, broadband internet, video on demand, etc.) assumed a considerable impact.

The increasing importance of the demand (pull) for intensifying the rhythm of diffusion of new vertically integrated services was justified not only by the internalization of the network externalities that originated from the transaction of packaged tie-in sales of network services, but also by the use of integrated software solutions for making possible the mobile access to technology-related services.

The example comes from Microsoft, one of the most powerful providers of mobile and embedded operating systems in the world. This innovative company recently attended to the demand (pull) of new vertically integrated services by introducing a new version of the software Windows Mobile 5.0, which has familiar features that facilitate the easy administration of e-mail accounts and Office attachments when the user are out of the office.

These features provide a new integrated platform that can be easily connected to other related telecommunication services, which would reinforce the logic of vertical integration services. New forms of innovation are also created. This can be viewed, on the one hand, as an opportunity to implement a real mechanism of constant supply (push) for the producers and, on the other hand, as a way to stimulate the demand (pull) of innovative services for the consumers.

Another recent example is found in the innovation strategy implemented by the South Korean producer Samsung Electronics, which has launched its third satellite digital multimedia (DMB) phone in the market. This equipment allows users not only to benefit from easier viewing of television emissions, but also access to integrated multimedia functions, such as mobile functions (photography, video reception, MP3 playing) and network games. Moreover, it supports an external memory and allows fingertip access to a

variety of files provided by the Office Microsoft software, such as Word, Excel and Outlook.

In this context, the producers and the operators should never forget that the drivers of innovation will determine the expectations related to the likely demand for what they are researching and developing, and subsequently for what they are going to introduce in the markets.

We can tell a story about these markets that are characterized by innovative activities which lead to the creation of new interactive markets, where, on the one hand, the demand pulls more innovated services and, on the other hand, the supply pushes more integrated services with an increasing added value, for both consumers and operators.

The innovative activity that leads to a specific technological trajectory is also a strategic issue that must be considered by the operators, because each innovation in the sequence should not be viewed as a simple accident. In fact, it should be strategically prepared as a sequence of innovations that can lead to more innovations. From different technological trajectories, all kinds of related services or applications can emerge. These trajectories are also interesting to consider, because they can transmit to us the necessary information about the rhythm of introduction of new innovations or technologies. In this line of reasoning, we can state that the durability of network services is affected by the degree of interactivity presented by the two sides of the market, that is, the pull of consumers to substitute the old service, and the push of producers and operators in order to give an answer to the requested substitution, making use of mobile schemes what cover even more vertical integrated services.

In this context, it must be stressed that more and more multinational companies are participating in the growing convergence, in terms of vertical integration of services provided by different telecommunications and broadcasting industries. In turn, the integrated scenario previously described raises new questions about the main frameworks for developing new and integrating business models.

The producers must rethink the business models to be applied to the different platforms for communicating with the consumers, such as VoIP, Bluetooth, 3G and Wi-Fi, by developing and incorporating simplified operating systems, new application frameworks and provisioning solutions, that should be provided both to the public and the private agents that aim to serve the potential users better.

The generic strategy that has to be embraced by the different agents should cover operational objectives such as the providing of integrated communications, the creation of collaborative networks, the design of people-driven processes and the guarantee of access to Web information sources.

A last word about the business models: special attention is required for developing new negotiation tools, secure payment systems, on-line transaction mechanisms, enterprises Web applications (e.g. structuralized in a SAP way) and software with intelligent agents in order to explore the interactive way of dealing in the new Web of open networks (WON).

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