

Challenges in Telecommunications

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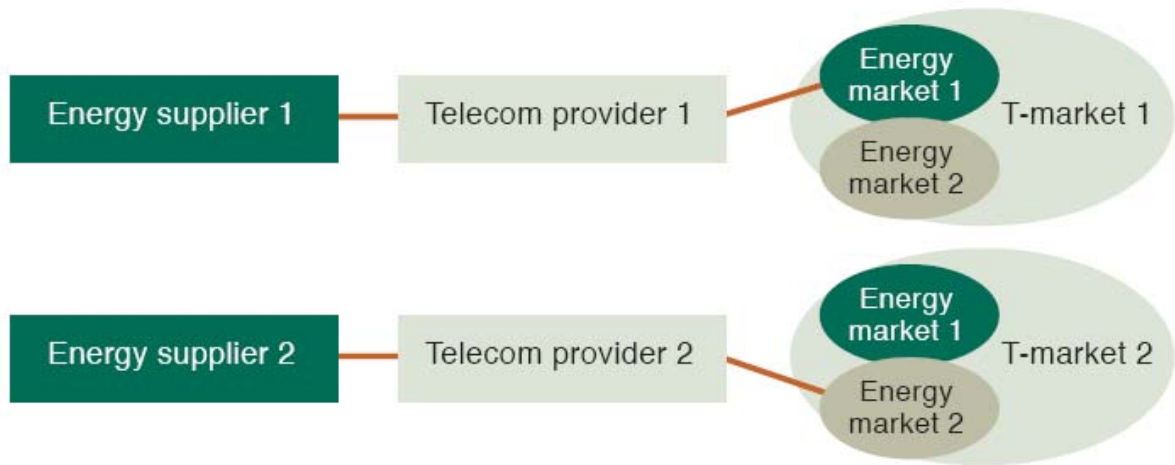
5 Value Creation

There are three different ways in which value is created in companies known under the concepts of chains, networks and shops [10]. The chain is the factory producing goods and is a linear chain that in its simplest form consists of logistics in (buying raw material), production of the goods, and logistic out (delivering the goods to the retailers)²⁾. The way in which this chain creates value is easy to understand and the principle has been analysed in depth by Michael Porter and other economists. The competition and the way in which prices are formed are both governed by the five-forces model of Porter described in any textbook on competition strategy. The value chain is still the prevailing value-creation principle taught in economics courses at universities.

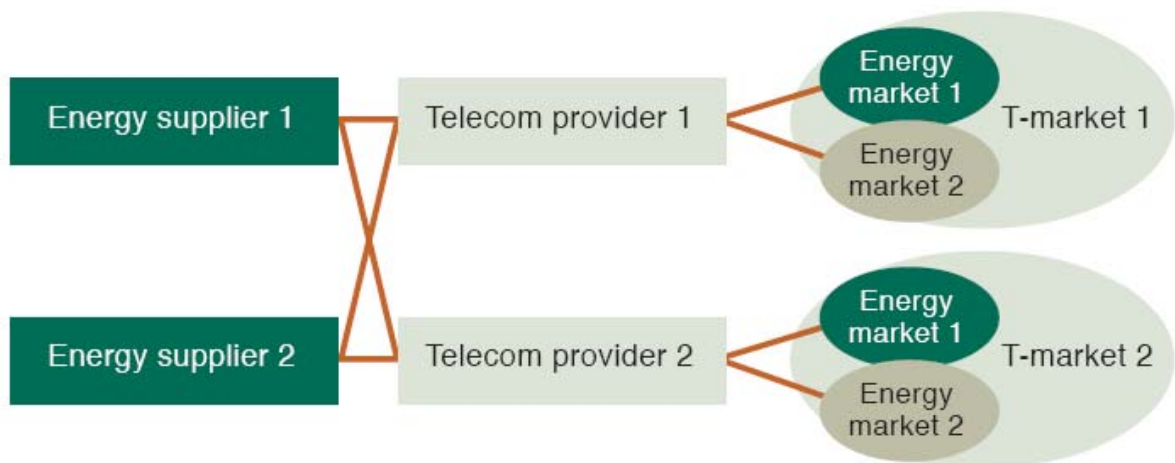
The network is more complex and more difficult to understand [11]. The network is a business mediating between the members of the market: people or other businesses. Examples are banks mediating between people depositing money and people loaning money; newspapers mediating between the readers of the newspaper and the merchants advertising their goods and services; stockbrokers mediating between sellers and buyers of stocks; publishers mediating between authors and readers; and communication services such as postal services and telecommunications mediating between people exchanging information.

Take the newspaper as an example: the more people who read that newspaper, the more attractive it is for advertisers. Therefore, the major competitive battle among newspapers is concerned with the number of readers they can capture and not so much how well they serve the market of potential advertisers. This may lead to strategies where the price per copy of the newspaper is less than that of its competitors while an advertisement is more expensive. The challenge is then to understand the correlations that may exist in the mixed market in which the company is operating: this is why newspapers are so preoccupied with the number of copies they circulate. Networks often produce goods that are not stored but consumed immediately. It is not possible to store for later use empty seats in aircraft or trains, surplus energy³⁾, unused bits in the telecom network, and empty space in the cargo hold of the truck.

Networks can also offer mutual benefits to its members. This is the idea behind clubs of different kinds (literary, musical, bonus programmes, sports): the more members, the more benefit. The insurance company can offer better security at a lower price if many people use it. Banks can adjust their interest rates depending on the number of customers. Several manufacturers benefit from having many people using their product, not necessarily forming clubs. Microsoft is probably the best example of this kind: the more people using their products, the more new customers they get. This is called network externalities. We will come back to this in the next section.



a) Exclusive agreements



b) Nonexclusive agreements

Figure 6 Co-operating networks

Networks may cooperate in parallel or in series forming rather complex configurations. The more clever they are at cooperating, the more market they may gain. However, this strategy is extremely tricky, as illustrated in Figure 6. The figure shows two ways in which energy suppliers and telecom operators can cooperate in order to serve the smart-house market. Both the energy supplier and the telecom operator are networks in the sense described above. The energy supplier offers remote management of the energy consumption of the smart house. The figure shows two examples of how the market may evolve. In Figure 6 a), there exists mutual exclusive agreements between each pair of energy supplier and one telecom provider. The motive for telecom operator 1 to do this is to persuade

customers of energy supplier 1 connected to the network of telecom operator 2 to change their subscription to telecom provider 1. The motive of telecom operator 2 is of course similar. The motive of energy supplier 1 may be to capture the customers of energy supplier 2 subscribing to telecom provider 1. Again, energy provider 2 may have similar motives. The outcome of this competition can be that one of the pairs takes over the whole market of both energy supply and telecommunications because of the network externalities discussed in the next section.

The situation in Figure 6 b) is different. In this case, all energy suppliers cooperate with all telecom operators, virtually leaving the market forces undisturbed. The motive of the energy supplier to go for this solution is to reach all customers. The motive of the telecom operator is to offer the service to all its customers irrespective of who supplies their energy. The situation resembles what is called the prisoners' dilemma in game theory because the worst that can happen is that one energy supplier cooperates with several telecom operators while the other is bound by exclusive agreements with only one of them. We shall not enter into a deep discussion of game theory here however important this theory is for understanding complex markets.

Shops are problem-solving organisations: consultants, health services, engineering companies, and architects. They earn more money the better and faster they can solve a problem and their most important competitive market force is their reputation. Shops may exist within networks or chains. Examples of the former are the advertisement department of newspapers, consultative sales department of telecom operators, R&D departments, and airlines travel agencies. The shop may of course be outsourced to independent companies: the airline may outsource all its travel agency and booking services.

The challenge of the telecom operator is then to understand all aspects of the way in which value is created in the different parts of the company: chains, networks and shops require different types of management. Chains require strict management of processes, timing, production cost and stock. Networks are sensitive to how cooperation is managed and the capability to operate in a combined cooperative and competitive environment. What makes this problem even more difficult is that telecommunications are used as raw material in almost all other products and services: banking, education, oil production, finance, energy delivery, transportation and logistics. This even leads to completely new products such as smart houses where the telecom operator cooperates with energy suppliers and security firms; electronic health services including management of patient journals and remote monitoring of patients requiring cooperation with public health services, private practitioners, social security administration and hospitals; intelligent transport systems requiring cooperation with road authorities, public emergency services, road payment systems, clearinghouses offering information security services, and information providers of several kinds.

Shops should have the capability to form flexible project teams and be able to reorganise quickly in order to solve new problems. It is damaging to shops if they are managed in a hierarchical manner. Such organisation may be efficient in chains but not in networks and shops.