Selling the Innovation: French and German Color TV Devices in the 1960s

Patrick Fridenson[1]
Ecole des Hautes Etudes en Sciences Sociales

The history of the introduction of color TV devices on world markets illustrates three major themes. First, selling the innovation--in consumer electronics at least--is as important as designing the new device. Second, the quality of the innovation does not necessarily provide a sufficient competitive advantage; the main factor for its success resides in the strength of the parent organization [see, for instance, 8]. Third, such innovations as color TV standards, before going into production, call for the definition of international standards, which implies selling the innovation to nation-states and to international organizations [4]. Conversely, economic and technological diplomacy becomes as critical to the final outcome as the building of effective marketing structures. It is then the equivalent of "promoting" in Chandler's use of the term "marketing" to "refer to promoting and selling goods" [2, p. 30].

This paper will discuss the competition between American, French, and German innovators, then consider international conferences which attempted to select the international standard in color TV. It will continue by showing how their failure and the impossibility of unification led to a second wave of campaigns to promote the competing color TV devices in various countries. Finally, shifting to the history of color TV sets, it will focus on Japanese manufacturers' successful adaptation to the differentiation of color TV devices thanks to new technologies and to sound marketing organizations, which enabled the Japanese to challenge the first comers.

Global Competition between Innovators

Black and white TV had grown without uniformity. Indeed the four major industrial nations had each developed their own definition of the TV

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[1]The sources for this research are the archives of the CSF and Thomson companies (in France), the papers of the German creator of PAL (at the Deutsches Museum in Munich), oral history (interviews of Messrs. Brézard, Dubail and Melchior in May 1990) and published literature, including the "green books" of the CCIR in Geneva. Thanks to Peter Fitzgerald (Carleton University) and to Ulrich Wengenroth (Technische Universität, Munich) for their suggestions on sources and references.

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picture: American (RCA), British (EMI), German (Telefunken), and French (Radio Industrie). When companies and innovators turned to creating color TV, they were conscious of the disadvantages caused by these four different definitions: primarily they limited economies of scale. But the first movers in color TV were soon under attack by challengers, and the pattern of diversity was repeated.

The first movers were Americans, because America represented the largest potential market for color TV. They consisted on one side of RCA and on the other of a group of firms working with the TV network CBS. For the sake of production costs and viewers' interests, RCA called for a unified system, which was reached in 1953 by a committee which gathered representatives of some twenty companies and labs and was named NTSC (National Television System Committee) [7, pp. 60-67]. However, this system had many practical drawbacks, and it was soon nicknamed "Never The Same Color".

The challengers were the French and the Germans. They invented ways to correct the color variations of NTSC. The paradox is that although Radio Industrie and Telefunken, the French and German companies which earlier had separately developed black and white TV devices, were now working together on color TV, they finally gave birth to two different devices: the French SECAM (its French nickname was "Supreme Effort Against America") and the German PAL (called by the French "German Provocation").

So the European pattern from cooperation to disunity was exactly the opposite of the American trend. On one side the French managers and engineers, obsessed by the development of their national industry, were not willing to share entirely and freely the SECAM with their German allies. On the other the German industrialists, becoming dissatisfied with this unequal relationship, encouraged their research department to move in a different direction from SECAM. This was the PAL. Although an attempt was made by PAL and SECAM people to reach an agreement, it failed. The French were afraid of the greater industrial strength of the Germans, and the German and French research teams had already diverged too much to accept the rapprochement suggested from above.

As a result of this divergence, the two European challengers, while improving the products central to color TV, could not make up for their time disadvantage and were not able to reap in Europe the same initial economies of scale as the American first movers on their own national market. Therefore they became highly interested in the competition for a world norm for color TV.

Looking for an International Standard

Both radio broadcasting and, later, black and white TV had brought about the growth of a number of international organizations whose task was to improve cooperation and standardization among nations, networks, and manufacturers. They had to assess the three competing color TV devices.

Despite considerable activity, they could not reach a consensus over a norm for the new color TV.

These organizations called for a huge effort in demonstration, comparison, measure, and testing of the new devices. For such a process large corporations like the American ones and even the German company Telefunken were rather well equipped. But the French company Radio Industrie was much smaller. It soon found that it lacked both the money and specific capabilities to sustain this long screening. When it obtained capital from two large French companies (Saint-Gobain and CSF), it turned itself into a specialized joint-venture, the Compagnie Française de Télévision. Then it could recruit and train the necessary managerial staff, particularly the product-specific marketing personnel.

Another consequence of the coming of color TV devices under the eyes of international experts was to further prevent a rapprochement between the three systems. Although the French Broadcasting Corporation and the largest manufacturer of TV sets in France were both against SECAM, because they were afraid of high production costs, the battle in international organizations soon brought in the French government, led by the Gaullists, which favored the French color TV device, in part because the U.S. government had just forbidden the sale of a major computer to France. Similarly, the U.S. government campaigned internationally for NTSC. For instance, it tried to convince the Soviet regime to adopt NTSC. In order to improve its support of SECAM, the French government developed a specific coordinating agency. It also agreed (in 1966) to give a reimbursable grant to the Compagnie Française de Télévision.

A third consequence of the intense promotion compaigns was to induce a series of improvements in the two European devices, notably of SECAM. These were feasible since, unlike the U.S., which as early as 1962 had 1 million color TV sets, industrial production of color TV sets had not yet started in Europe.

The Conferences of Vienna and Oslo

The international organizations specializing in radio and TV communications gathered in Vienna in 1966. The immediate result of this conference was undecisive. Eighteen nations voted for SECAM--among them France and the USSR. Fifteen nations voted for QUAM, which was a synthesis between NTSC and PAL. QUAM was produced and presented simultaneously by the Americans and the Germans, and was supported by the Japanese. The sheer fact that the larger industrial nations were in the minority meant that another conference would be necessary.

Meanwhile, the French company again lacked capital to continue promotion campaigns, which were becoming more important and more costly. The French government suggested to the main shareholders (Saint-Gobain and CSF) that they allow the entry of Sylvain Floirat, a small industrialist specializing in armament and broadcasting who was familiar with both government procurements and lobbying [1, pp. 41-62]. The two parent firms of the joint-venture accepted and the Floirat group joined in, bringing an

increase in capital. Floirat became the new president of the Compagnie Française de Télévision and its management style changed from modern bureaucratic to entrepreneurial.

The next international conference took place at Oslo a few months later. QUAM had disappeared and the competition again was among SECAM, PAL, and NTSC. At the conference there was no major change in national preferences. It became clear that the world would be divided: the US and Japan would keep NTSC, the rest of the world would have to chose between PAL (now quite close to NTSC) and SECAM [3].

The Final Competition between PAL and SECAM for Export Markets

The French and German companies undertook to convince opinion leaders and governments of the superior qualities of their color TV devices in order to sell licenses to foreign firms. The French knew that they ran the risk of finding themselves in the same kind of isolation they had experienced with their black and white TV device with its 819 lines. They clearly were defeated by the Germans, but this time they earned sizable profits abroad as they conquered markets and received royalties on their patents. They accomplished this with enhanced interfirm cooperation.

New Interfirm Cooperative Arrangements in France

First, existing cooperation needed to be reshaped. The fact that Compagnie Française de Télévision was a joint-venture, and not a large corporation, was believed by top managers to be either an obstacle to the industrial production of color TV sets in France or a possible course of weakness in coping with the hazards of exports. Accordingly the Compagnie Française de Télévision was once again reorganized in order to enhance existing strengths. It focused on the exploitation of SECAM patents. Its research labs and staff were transferred to the three parent companies. A specialty company, France-Couleur, was created to produce SECAM color tubes in large numbers.

Cooperation also needed to be extended. In this respect a major organizational innovation was the founding of Intersecam, which linked the Union of French producers of TV sets (50 %), the French Broadcasting Corporation (30 %) and the Compagnie Française de Télévision (20 %). Intersecam was responsible for co-ordinating the production of color TV sets in France and, beyond this, the promotion of SECAM abroad by way of demonstrations, technical co-operation, and information. Its representatives in various nations would negotiate with public authorities, industrialists, dealers, and mass medias. Promotion campaigns abroad received half of their budget from the French government, part of which would later be reimbursed by industrialists. Intersecam's resources served, for the first time, a clear commercial strategy, targeted first at East European nations, second at Italy and Spain, third at Lebanon.

The Results

The majority of West European nations chose PAL, following the example of the British (who had even tested NTSC) in spite of the campaigns by American firms and agencies [3].

But the overall balance was not disastrous for the French. Fourty-one countries chose SECAM, bringing about a turnover ranging between 1500 and 3000 billion French francs. As the promotion expenses had been 100 million francs, they represented from 2 to 4 percent of the turnover, quite a normal ratio in the industry. The French fared particularly well with the selling of SECAM patents: 500 million francs for an investment of 100 million francs in research. This amount was also related to the success of the PAL device, since it incorporated many SECAM patents, given the initial co-operation between the French and the Germans and the later patent agreements between them.

There were also indirect profits. For instance, although South Africa did not finally choose the SECAM device, it became interested in French electronics products and issued large orders to the French company Thomson.

There were, at the time, some forty French producers of black and white TV sets, some important, some unable to export. This was one of the causes of the difficulties in co-ordinating the initial campaign for SECAM. However, color TV investments and market competition contributed to a wave of mergers, resulting in a major concentration of the French TV manufacturing industry. Only one French manufacturer was left, Thomson-Brandt (plus the French subsidiary of Philips). This was not the case in Germany, where the excess of competition weakened the more numerous remaining players.

The Rise of the Japanese Manufacturers

Alfred Chandler has emphasized that "it was not the innovation ..., but the development ... that was ... the critical step by which established firms became leaders in new industries and obtained profitable market shares in related established industries" [2, p. 228]. In this perspective, the existence of several color TV devices paved the way for a flourishing Japanese color TV industry. The Japanese used the competitive advantage of being latecomers. They first adapted to the division of international markets between the various color TV devices and then overcame it.

Following a renewed pattern of technology transfer, the initial strategy of Japanese firms was to purchase licenses from Germany (PAL) or France (SECAM) in order to penetrate various foreign markets. They soon were able to reap the benefits of economies of scale and scope in mass production of color TV sets. They also began to improve the quality and technology of NTSC-type TV sets.

The French market remained, however, protected from a possible Japanese invasion because of a commerce treaty which limited imports of Japanese TV sets into France. So the French TV industry benefitted on its home market by this policy of voluntary restraint and eventually accumulated

enough strength to compete internationally. Germany did not have such a treaty and could rely only on its patents.

Time and technological progress gave the Japanese latecomers trump cards. The obstacles to economies of scale, which the variety of color TV devices had built, gradually fell.

First, the initial patents expired--after 15 years in Italy, 17 years in Britain, and 20 years in other European markets. This made color TV technology readily available to the Japanese. Telefunken in Germany and the Compagnie Française de Télévision in France observed that for such fundamental innovations the life of the patents was too short to obtain the highest possible level of profitability.

Second, in 1975 the implementation of integrated circuits and the fall in cost of components enabled the French subsidiary of Philips to produce color TV sets which could take either PAL or SECAM pictures and were compatible. Soon other manufacturers developed similar techniques. It thus became possible to export TV sets anywhere.

Third, the Japanese took the export markets of German manufacturers of TV sets because of lower production costs, larger investments in marketing and, sometimes, better quality. Therefore the German marketing networks, which were quite active in the Middle East and Africa, disappeared from 1975 onward. In Germany itself the Japenese corporations found German companies which were willing to import TV sets made in Japan and to sell them under a German brand. The rest of the German TV industry fell into the hands of the French corporation, Thomson--including, by the way, Telefunken, the creator of PAL--and of its sole European competitor, the Dutch firm Philips. The German device, PAL, had won "the color TV war," but the German firms themselves had been wiped out.

Conclusion

Returning to the different dynamics of first movers and challengers [2], one obvious challenge is to understand why the first movers in color TV, the Americans, did not rise to world supremacy. There are two possible answers. One is general: the loss of "competitive edge" in this industry [6, pp. 12-14 and 217-231]. One is specific and could be expressed in terms of "path dependence" [5]: it has to do with the technological innovation itself, NTSC, which it took some 20-25 years to become fully satisfactory.

The lessons drawn by the Europeans from this competition between rival innovations also deserve notice. They concluded that in consumer electronics promoting the innovation had become a critical organizational investment and commitment and that interfirm cooperative arrangements were of great consequence for the success of the innovation. Therefore, for the introduction of high definition TV the French (Thomson) and the Dutch (Philips) cooperated from the 1980s onward. They tried to secure alliances in the US. Specific organizations for promotional campaigns were developed, sometimes with the same people who had gained experience in color TV in the 1960s and 1970s. The Japanese, however, were now simultaneous first

movers. They were able to design their own HDTV device, Hi Vision, and also to compete on broadcasting programs.

We hope to have shown that the history of color TV devices was, at a high cost, a process of learning by trial and error for the Europeans. The issues at stake were not merely technical or political, as was often believed at the time. Although we have stressed the impact of government on business performance, the story had two other major implications: the long run victory of Japanese and French manufacturers of TV sets relied partly on the protection of their national markets; the Germans learned that the successful management of an innovation is not enough and that late challengers can undermine it by organizational advantages.

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