

Dematerialization in the AV Industry, from Boxes to Attention

A case study of a newcomer, Tivo

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Abstract: The audiovisual industry's evolution towards the digital era has enabled new actors to enter the market. Tivo Inc has positioned itself as a new comer on the home electronics market by offering both equipment - digital video recorders - and recording services. Although this offer is innovative and evolutive, Tivo's entrance into the AV industry has been highly constrained in that Tivo's interests often conflict with those of established actors. It is Tivo's penetration and dematerialization strategy that we shall analyse in this article; in particular we will examine the services and technologies Tivo has mobilized, the evolution of the valued intermediation functions and the various dimensions of the targeted users. Understanding how these different dimensions combine with one another helps to understand the different attention capturing mechanisms on which this strategic positioning is based.

Key words: AV industry, dematerialization, service relationship, attention economy, broadcasting, EPG, DVR, audience.

The advent of the digital era has caused profound changes in the audio-visual (AV) industry: new technologies, new uses and new economic models all combine to produce movements that are difficult to predict (TCHEUNG *et al.*, 2007; MEYER, 2006). These transformations will probably generate radical changes in the chain of value (indeed they have already done so), and the various players in the sector will consequently have to reposition themselves strategically so as to adjust to this new context (CHANTEPIE & LE DIBERDER, 2005). In order to shed some light on these ongoing changes, we shall examine the case of Tivo Inc, an industrial group that has come to symbolize these new modes of consumption of audio-visual content. Tivo is a pioneer in DVR (Digital Video Recorders) and PVR (Personal Video Recorders) applications, on a market (that of video players

and recorders) that used to be dominated by a few leading manufacturers of domestic electronic equipment (Philips, Thomson, ...).

Within a few years, Tivo has become emblematic of these new services - particularly in the USA - without however having reached a dominant position on this market (1st Section of the paper). The aim of this article is to understand how this newcomer has managed to impose itself so effectively, and to draw some lessons concerning the characteristics of this new digital economy. Tivo initially manufactured terminals, but then progressively developed a service-oriented strategy (2nd Section); this is an interesting example of the digital mutation and the logic of the immaterial, which in this case goes well beyond the simple service level (3rd Section). What is more, this firm has had to reformat its clientele so as to shift the sources of value; thus the status and role of the consumers change when the firm offers a new type of products (4th Section).

■ **Tivo, a newcomer in the domestic AV equipment industry**

Tivo Inc was founded in 1997 by former employees of Silicon Graphics and Time Warner, following a digital video recorder development project. This double origin - high tech and content distribution - is a clear example of the hybrid qualities that are often key ingredients to the success of new firms. The firm was introduced on the Nasdaq in September 1999, after changing its name to Tivo. Tivo soon gained a reputation for being radically innovative (in 2007 Tivo's products were voted third most innovative products of all times by PC World Magazine), and has become emblematic of the changes in consumption patterns and in consumers' access to audio-visual content. The founding principle was to re-create and improve the functions of the traditional videocassette recorders by using digital technologies. The creation of market value is based on a two-tiered economic system: the purchase of a digital recorder (set top box), and the subscription to the Tivo service that includes a range of options for access and visualization of various contents; it is necessary to acquire the "Tivo box" in order to gain access to Tivo's range of services.

A new way of consuming TV

The popularity of Tivo's DVRs is associated with the new TV viewing options they offer. Tivo's DVRs (and those of its competitors) contain hard drives with various capacities that enable users to record between 80 and 180 hours of television programs, and to watch TV contents in a non-linear manner, whereas TV viewers were previously constrained by the schedule of programs proposed by the television operators. The competitive advantage of Tivo is built on a development of this delinearization technique, by offering additional functions that make it possible to fully exploit the potentials of this "set top box". Thus, various functions are offered to the user depending on the level of services s/he subscribes to.

Two new types of functions in particular have radically modified the habits and common practices associated with the consumption of audiovisual contents, and have caused a break from the logic of linear viewing: the recording and the viewing functions. The new recording functions enable the user to automatically record certain programs (series, for example), or contents identified according to criteria selected in advance (film director...). Thus, it is no longer the TV channels' program schedules that influence what the viewers watch and when: what becomes decisive is the genre, the viewers' likes and dislikes and the expectations that have already been forged elsewhere. Thus, there has been a shift towards a "stock logic": the viewer has become a shopper or a predator, so to speak, and the TV schedule has become a mere catalogue from which the viewer selects what s/he wants to watch. This is the first shock for the television programmer, whose hold on the viewer is drastically reduced. Moreover, the users can get "Tivo suggestions", a function that tries to recommend shows the viewers might like; the suggestions are based on the viewers' profiles and habits and their ratings of the programs they record. Another option, the search function, serves as an assistant to the viewer in that it performs the task of seeking information about TV programs. Thus, by suggesting certain shows to the viewer, Tivo has taken over part of search "work" the viewer had to do for him/herself in the past. Not only are the content of broadcasters' programs destructured and turned into a list of items in a catalogue, but their prescriptions and selection no longer have any value. Similarly, the influence of critics and television magazines (which are very important in the broadcast version) is declining in favor of amateurs who can now use this recommendation function. As for the viewing functions, their purpose is to free the viewer from the constraints of traditional broadcasting. Television viewers can pause or rewind a "live" TV show and/or perform a slow-motion replay. The most emblematic example of these new functions is

the possibility to "skip" the advertising sequences that are broadcast within and between programs (though this function has progressively evolved). It is this ad-skipping function that has made Tivo famous (or infamous, depending on one's point of view); it is even more significant than the search function mentioned above, because it actually threatens the whole economic model of broadcasting itself (including cable and satellite channels) which rely so heavily on advertising revenue.

The overall potential of the Tivo set top box is not merely based on technological performance; it has led to the emergence of a new model of mediation, a new model of attention-capturing and of production (from linear viewing to non linear storing), and a new economic model. It does not just provide a service, it makes the quasi-political promise to television audiences that they will get their revenge on the "all powerful" broadcasters. Admittedly, remote controls have for many years enabled viewers to switch, very creatively, from one channel to another, and have done so at a great cost to broadcasters, but TV users now have an intelligent, selective and programmable remote control! By identifying and overcoming the limitations of the traditional broadcasting model, Tivo has created a new type of TV audience and new ways of watching TV. And the success has been immediate, as shown by various indicators drawn from studies about client satisfaction:

- There has been an increase in the time spent watching television after subscription to the Tivo service; a study (conducted by CBS in 2005) shows that households equipped with PVRs (8% in the US) watch more television than those without (5.7 hours on average in the first case against 5.1 hours in the second case).
- Very low subscription cancellation rates (about 1%);
- A large percentage of viewers' TV watching time is spent watching programs recorded in the "data bank" (about 60%). More precisely, recent data collected through Tivo's new Stop Watch service (related to viewer's metrics, developed in section 3) indicate that in prime time, 57% of all viewing is time-shifted (and 66% of the ads are skipped). Across all time periods, 36% of viewing is time-shifted and about 50% of the ads are skipped. Thus, the strategy of differentiation through innovative use patterns has enabled Tivo to rapidly impose itself on the emerging market of digital recorders. Tivo is a dominant player in a now substantial and expanding market. Estimates show that about 17% of American homes are equipped with a DVR. Tivo's share of this market is approximately 30-40%.

A fragile economic model

Although the use value of this service is high, the profit rate remains low and, since 2005, the growth-rate of users has dropped. Although Tivo has undeniably conquered the pioneer users, it is now facing strong competition from other makers and service providers that rest on a different economic model.

Making the difference... on condition that it is visible

Tivo made a difference by creating new practices, and by opening a new market. However, the cost of a Tivo DVR is higher than that of all the other DVRs currently on the market; this is because Tivo's offer consists of the Tivo DVR combined with a Tivo service subscription, a marketing solution, which though original, is not necessarily visibly advantageous to the client. The offer of multiple functions can certainly attract « early adopters » and "technophiles"; but it is a well-known fact that these functions and tools are massively underused by most subscribers. And yet Tivo's self-proclaimed challenge has been to convert presumably passive television consumers into active and conscious viewers who design their own TV programs. But this can only be achieved if the viewer is "active" and "works"; it requires that the viewer focus his/her attention onto a goal and that s/he make decisions. Storing and viewing television content requires decision making, whereas the traditional linear viewing experience does not. This cognitive cost combined with a relatively high financial cost might explain why Tivo has not yet managed to conquer more than 40 percent of the DVR market share. Nevertheless, Tivo has definitely set the standards in the field of selective and time shifted viewing practices and has become synonymous with DVR technology; so much so that the brand-name Tivo is commonly used as a verb synonymous with controlling one's TV programming ("Could you Tivo Desperate Housewives for me tonight?"). The ironical paradox is that this brand image does not help consumers differentiate Tivo DVRs from other generic ones. This is reminiscent of the well-known story of Frigidaire: the initial success of a new product caused consumers to associate the functions with the brand name, until eventually the name lost its character as a specific brand and became a common noun; it was a paradoxical success in that it turned a product that was truly innovative and therefore different into an invisible one. In 2007, Tivo launched an advertising campaign designed to clearly differentiate Tivo services from competitors': "I'm not interested in the generic DVR. I want the Tivo experience" (New York Times, 05/03/07). And the possibilities offered by Tivo are many and are not limited

to the selective recording or ad-skipping function. But too many functions are crammed into the Tivo box and are, as a result, difficult for most ordinary consumers to fully understand and use.

The risks of independence

One of Tivo's initial characteristics was their high level of independence from other actors. Indeed, the boxes were distributed and could be used independently from network operators. Approximately half the revenue was generated by the sales of DVRs and the other half by subscriptions to the associated services.

The main threat to Tivo's dominant position comes from television operators (cable and satellite operators) whose packages include PVR features. The functions offered are admittedly less innovative than Tivo's, but subscription to their services costs approximately the same as a subscription to Tivo and the DVR is provided for free, which explains why television operators attract a large proportion of the users.

In order to remedy the drawbacks of the complete independence model, Tivo has progressively sought to develop strategic partnerships, with the aim to integrate their services into the offers of the various cable and satellite operators. The DirecTiVo package is the result of Tivo's first agreement with a satellite broadcaster (DirecTV). Tivo also had partnerships with BSkyB and Comcast, but they were short-lived; this is a clear indication of Tivo's difficulties in developing an economic model that includes partnerships with television operators. (CHORIANOPOULOS & SPINELLIS, 2007). In 2008, Tivo managed to get back in the game with cable operators by selling them software in partnership with Comcast in New Hampshire and Massachusetts. The problematic nature of co-operation with operators is also reflected in the difficulties of developing differentiated contents (Premium) which could enhance the attractiveness of the service beyond the innovative functionalities. Out of the 3,8 million Tivo subscribers, approximately 2 million subscribe through TV operators (in April 2008). In view of their difficulties in maintaining partnerships, Tivo continues to develop its innovation strategy in the hope of boosting its retail business, and seeks to form strategic partnerships with organizations other than television operators.

Beyond television services

The convergence of digital networks and the fact that broadband Internet has become so widely available have made it possible, particularly since 2005, to develop complementary functions that are no longer strictly restricted to television applications¹.

The users of these new services do not so much subscribe to specific television recording and viewing services, but rather to a portal of increasingly general services; this portal includes a whole range of services that can migrate from the computer screen to the television. As the list of these functions shows, one can find almost anything on Tivo (the motto is "one remote, one box, one user interface, all content"). It is especially noteworthy that this new context has enabled Tivo to form many new partnerships; because unlike the structurally conflictual relationships Tivo had with the major television operators, the new relationships are complementary and synergetic: for example, Tivo services complement Yahoo in the field of road traffic and weather information services; and they complement Amazon for Video on Demand (VOD), etc. The Tivo box is defined now as a digital video receiver, "an on-demand box for any movie, any show, any song you want".

The Tivo offer includes Internet access, and in some cases a telephone operator since a mobile phone is included in certain options. But above all, Tivo has sought to develop a brand-image as a provider of services that go far beyond standard digital recording services, in order to benefit from their status as "pioneers in the field".

¹ Tivo proposes two main categories of new functionalities, which renew the modes of audiovisual consumption : prescription functions, and uses in a domestic network.

The prescription functions proposed by Tivo make it possible to regroup into a single service a whole range of prescription functions that were formerly accessible via different channels and media : word of mouth, TV news, videotape libraries...

The network functions allow for inter-connection between various networks and domestic terminals (home computers)

A final service is the possibility of programming from a mobile phone. This service, developed in partnership with the operator Verizon Wireless, makes it possible to perform searches and to program Tivo at a distance.

■ Value creation through services

As Rifkin has explained at length in his book "The Age of Access", the sources of economic value have shifted from material products to the services that are associated with them. (RIFKIN, 2000). Thus, material goods become the medium or receptacle of immaterial services, and it is the latter that ensure differentiation and the creation of market value. (PERRY, 2001).

The impact of this shift in terms of the sources of marketable value is crucial and must be taken into account in order to adapt the models of payment to this new industrial economy. Thus, there is a two-fold movement: a decrease in the prices of material goods, and an increase in the prices of services to users. There is some ambiguity in the Tivo model which, on the one hand, evolves by adopting a strategy that is clearly based on service innovations, but on the other hand maintains an industrial strategy that consists in selling its material recorders (and what's more, at what consumers consider a high price). There certainly has been a progressive shift towards the service dimension; but this has not led Tivo Inc to abandon its retail activities and the corresponding economic model. CEO Tom Rogers puts it clearly: "Tivo Box is still very important for us. It talks directly to consumers" (May 29 2008). This indicates that Tivo's marketing strategy rests not only on the quality of the services they offer but also on that of their hardware (the box). But is this refusal to choose valuable for the market?

An increase in the value of intermediation services

Tivo's service positioning needs to be identified. The range of functions and services proposed at a first level constitute what is called an Electronic Program Guide (EPG), which guides users to relevant content. Thus, right from the start, the Tivo software applications have the function of interface between the contents on offer and user demands - targeted in terms of content and of the viewing of the programs. Firstly, Tivo and its decoders have made it possible to view television contents in a non-linear manner; there is a qualitative break from the logic of linear flow. The traditional television-broadcasting model rests on schedules of programs thanks to which the viewer's attention is captured, and on an advertising revenue system that rests on this captive attention. Tivo's applications have strongly altered this economic model of mediation; in a way, Tivo "un-mediates" the relation to the contents (MISSIKA, 2006). However, this logic of

deconstruction is only one effect of Tivo's applications. The other functions, for their part, aim at generating and indeed reconstructing new forms of mediation with the user. In fact, the digital paradigm offers the conditions both for increasing content variety, and for facilitating and improving interaction with the users. The increasing amount of content available complicates the choice of users in this digital universe; but the possibilities for personalizing the services in this universe make it possible to develop new mediation services. These services are all the more valuable for the client in that they make it possible to identify their desires and expectations, and to respond in an appropriately differentiated and contextualized fashion (COHEN, 2006). The suggestion/recommendation and programming functions, are all applications that have contributed to the transition from one mode of mediation to another.

Thus, the new modes of television consumption, as promoted by Tivo ("consumer control and infinite choice" as the CEO puts it), are not the result of a "de-mediation" and from a direct relationship between the producers of content and the demands of viewers; on the contrary, they are based on the emergence of new forms of mediation which are much more user-centered, and which can have economic value precisely because of this (HUET, 2006). This position, which consists of an adjustment between supply and demand and thus contributes to increasing the flow of economic exchange, has indeed been identified as a privileged source of value creation in the network industries (CURIEN, 1999; GENSOLEN, 1999).

From diversification to the aggregation of services

By diversifying its range of services and products, Tivo has not sought to create new relays for growth, but rather to propose a range of services that are interconnected but differentiated so as to increase their usefulness such as it is perceived by the users. By doing so Tivo has sought to become an "obligatory passage point" ("point de passage obligé", in ANT theory, Callon & Latour) in the whole sector of audio-visual services. It aims to expand the firm's scope of legitimacy, and to enlarge its community of users, so as to generate networking effects (BOMSEL, 2007).

"Dematerialization" does not merely consist in a shift towards the commercialization of access, and to the integrated management of finely detailed relations with clients, which are transversal to the media employed. This logic of "segmentation" has been adopted by all the

telecommunications and ISP companies, and their marketing know-how in terms of subscriptions, special formulas and package deals (ever more complicated, and above all impossible to compare!) is indisputable. But in Tivo's case, the integrated package deal serves yet another strategy of valorization, that of the brand name. Tivo's recent advertising campaigns aim at promoting a generic brand name, no longer attached to simple digital recorders but corresponding to a global service.

For there does not seem to be any end to the process of dematerialization, when the creation of value that is pursued is "value for the share-holder". This is why it is so crucial for Tivo Inc to win patent suits, as it is an important source of revenue (and therefore of value for shareholders). The Echostar court case provides a good illustration of this. Dish Network has been one of the competitors Tivo Inc has sued. Following the court case, the only option left to Dish Network was to either buy Tivo Inc , pay licenses or get out of the DVR business, which is what Tivo is aiming for its competitors to do. But this is the defensive part, that can help to capitalize on the benefit of the innovation and to gain control on the brand and its everyday use.

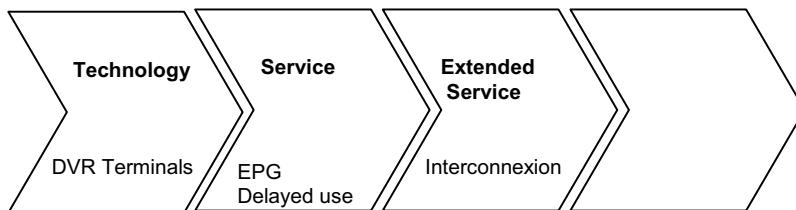
■ **Tivo, an example of the unlimited tendency to dematerialization?**

From recording services to extended access

Tivo has extended its service-centered approach to all forms of access to audio-visual contents, to the point where it has actually started to encroach on the domain of Internet service providers or Telecommunication operators by proposing offers for mobile phones. This shift towards access services indicates how, via an entry-point that is actually relatively small – a DVR with an intelligent EPG (Electronic Program Guide) which gave it strong added value compared to its competitors – one can gain a foothold in these markets of generalized access. For Tivo, the entry-point was narrow, since the strategy consisted of taking advantage of the momentum generated by know-how in the mere administration of contents, without having any control over the actual contents themselves. As we have seen, this absence influenced the choices made by Tivo since the firm was unable to develop partnerships with major owners or distributors of catalogues: either Tivo

represented a threat to their economic model based on advertising revenue; or Tivo contributed nothing new to VOD services that were already highly selective. It is largely because of this weakness concerning the actual contents, and associated copyrights, that Tivo was forced to extend its model to access in general, independently of the stock of contents. Let us summarize these shifts by proposing a configuration in three stages:

Figure 1 - Evolution of the offer proposed by Tivo

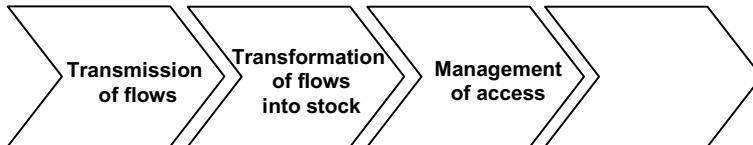


Let us note that the first two stages are directly linked in the history of Tivo, because the firm entered the market precisely by offering a solution combining innovative services and a DVR device. Other suppliers of DVR limit themselves to selling the box, even today.

From mediation to reputation: strategies of valorization

It is important to understand what this means in terms of audiovisual mediation, because only then can one fully grasp the audacity of the Tivo model. Let us summarize our point as follows:

Figure 2 - Evolution of the mediation functions valorized by Tivo



Tivo's relationship with the broadcasters, and then with the owners of the audio-visual contents, has always been problematic and indeed conflictual. From the point of view of a broadcaster, a DVR's role should only be to assemble content flows, and to perform the function of a sophisticated video-recorder. Not only does Tivo record the contents but it processes them in a manner that disrupts the whole logic of real time flow and the power associated with it; so much so that it makes it possible to automatically

eliminate the advertising sequences. In other words, Tivo can convert flows of contents into a stock of contents – and that is precisely the core of its know-how – thereby removing the television viewer from the very sphere of captive attention that is so strongly valorized by advertising. Its specificity lies in its ability to process content flows and converting them into stock (and not in its ability to organize this stock, which can be done by any VOD operator). Tivo is hoping to find salvation by expanding its competence in the field of content management, by becoming a true gateway . The new Tivo offer extends the sources of contents to all domains, including Internet (with Tivocast). It is by integrating all the means of access - however different they may be (including existing stocks such as VOD) - that Tivo can hope to set itself up as the obligatory passage point. By doing so, Tivo goes way beyond organizing and managing contents; it actually manages a clientele, by offering its clients everything that they could find anywhere else. Thus, Tivo has shifted from a model of mediation centered on the contents (albeit on the side of the users), to a model centered on the clients themselves.

Thanks to its client based equipped with its terminals and subscribing to its services, Tivo can become a gateway to all media and all forms of contents. Tivo therefore aims to come to the rescue of TV Broadcasters by selling them solutions that will help them adapt to these new modes of television consumption (i.e. TV viewing in a non linear manner) . Talking about the Networks, Tom Rogers said "Before we get to 40% DVR penetration, they have to come to terms with this, avoid music business' fate". The paradox here lies in the fact that Tivo is considered largely responsible for the destruction of the traditional broadcasting model and at the same time presents itself as the savior of this very industry!

It is this brand equity, a perfectly intangible asset, that Tivo is now seeking to capitalize on. Positioned as a special kind of access provider, Tivo can claim a uniqueness on the grounds of its history and of the special kind of know-how it indeed possesses. However, this link with the intrinsic qualities of the service is only the first component in the pursuit of a brand strategy. Paradoxically, Tivo must now do everything possible to detach itself from the product that made it famous in the first place. This is all the more important that Tivo is facing a decline in its subscriber base (3,8 million in April 2008, down from 3.95 million in the previous quarter).

As Tom Rogers explains: Tivo cannot keep on "being an island divorced from the media industry and being viewed as a pariah in the media industry". The failures of the various partnerships gave the momentum for changing this strategy and for offering really valuable services to the media industry.

This is why Tivo decided to operate "a transition from a company that sells subsidized DVR's boxes to a company that sells viewer metrics, DVR software as a service over cable boxes, and expensive unsubsidized high def DVR boxes" (March 11th 2008). And it is important to note that Tivo was able to generate value using its own subscribers, by turning them into a large panel for viewer's metrics. CBS, NBC, Carat US, Interpublic and Starcom have entered into partnership with Tivo so as to obtain the data collected every second concerning the behavior of the 20000 "Stop Watch" Tivo subscribers. Another option (Power watch) combines this data on the behavior of a sample of 20,000 subscribers with data about their personal profile; this is an asset that is specific to Tivo as an operator that has direct access to data about users. The first published data (covering May 2008) show relatively predictable results concerning demographic differentiation: toy ads get more eyeball time in households with kids 12 and younger, whereas hair tonic shills receive more attention from the over 50 set. Another significant result is that the highest-rated commercials of the week do not often appear in the most-watched programs. This illustrates the need for advertisers to examine more closely the viewers' behaviors and in this context Tivo's services might prove very useful.

But this may seem as a last chance attempt to stop losing ground and to form relations with the TV industry. In fact, Tivo does not stop at this level of dematerialization (which is crucial in terms of validation of ads investments): Tom Rogers announced that Tivo aimed to "create ads people want to watch, and accurate ways to measure those ads". Thanks to this move, Tivo might succeed in transforming themselves from wolves into sheep: the very company that gained all its reputation by breaking the flow of contents that combined shows and commercials, and therefore the power of broadcasters, is now the one that rescues the ones that got hurt by this strategy and that has become the ad specialist! A new "product purchase" service, developed in partnership with Amazon enables Tivo subscribers to purchase Amazon products related to their favorite TV shows or that they've seen in TV ads. The "Swivel search" allows subscribers to search products based on actors, subject matter, fan suggestions, etc. The development of this new kind of commercial service is indicative of Tivo's strategic attempt to attract the interest of advertisers.

Noteworthy is the fact that this argument is based on a knowledge of the user's behavior and attention. For instance, Tom Rogers explains that Tivo knows "how to grab eyeballs", that it has been able to get away "from Nielsen notion that whoever watches the show is watching the ads" and has

shown that viewers would rather watch "a 3 minute trailer (with an offer of services at the end) than 30 second ads" (May 29 2008).

■ The various statuses of the targeted audience

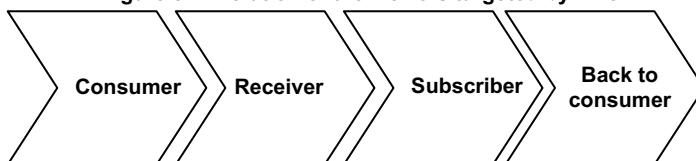
The success of these strategies necessitates changes in the ways the audience is dealt with and how successfully it can be formatted.

Evolution in the relevant dimensions of the clients

Only too often, the figure of "the client" is thought of in a very general way, which does not do justice to the ability of firms, and particularly of their marketing departments, to break down this figure and to distinguish certain key characteristics of the client. On the basis of our work on television, its reception and methods of measuring the audience, we propose to distinguish four of the clients' main dimensions: receiver, user, consumer and citizen (BOULLIER, 1994, 2004). Each of these dimensions calls for a specific sort of ability to interpret the contents, to manipulate the interfaces, to choose an offer, and to contribute to the common good. Our study on Web browsing practices, has also enabled us to document several of these dimensions. (BOULLIER, GHITALLA *et al.*, 2003)

Tivo's case prompts us to develop and detail the figure proposed previously. But the principles of the various client dimensions must be adapted to Tivo' situation; indeed, it is constantly necessary to explore, for each specific market, the various dimensions of the client, and the specific mediations thanks to which the overall mechanism will last.

Figure 3 - Evolution of the viewers targeted by Tivo



The flows generated by broadcasters target the viewers as consumers above all, because the economic model is based on advertising. Audience monitoring does not take into account the content or the quality of the programs, it is only interested in the viewers' exposure to the contents and

helps determine the price of advertising slots. With Tivo, what changes is precisely that the targeted dimension is that of the receiver, a receiver who is technically equipped (s/he owns a box). The viewer also becomes a user, because s/he has to know how to operate the interface. Tivo does indeed presuppose an active television viewer, who has a real desire to select programs by virtue of their interest: this active viewer has likes and dislikes, s/he interprets the contents, and is even prepared to acquire a new tool in order to be able to choose and store the contents that interest her/him. The dimension as a simple consumer disappears, precisely because Tivo proposes to separate the receiver from the consumer by making it possible to automatically skip the commercials.

By turning to the access provision business, Tivo is, in some ways, admitting to failure in their attempt to consider the user an enlightened receiver who has an opinion about the contents s/he watches. Tivo's access provision era has prompted Tivo to focus on the user as a subscriber. The key is no longer the flow or the stocks of contents; what is important is to attract the subscriber by offering her/him all possible types of access. The source of value for Tivo lies in a thorough knowledge of the tastes and especially practices of the client, which can now be traced. Tivo is now working at maintaining its subscriber base by offering clients so many access possibilities that they will no longer need to look anywhere else. At the same time, Tivo also seeks to exploit the added value of his clients file; this is a common practice among players in this industry. The subscriber actually becomes more and more detached from specific contents, and his competence as a receiver is not of much interest at this point. S/he is ready to be considered again as a consumer, but of an expert kind, that will be the target for new kinds of ads, the new generation of ads that Tivo is now willing to create from its thorough and unique knowledge of on-demand viewers.

A specific know-how about viewers' attention

Tivo's evolution bears witness to its shift toward an emergent economic regime, that we can call the "economy of attention", which has become quite crucial in a dematerialized economy. The "economy of attention" refers to a new regime based on the concept of a shift of the source of scarcity, and therefore of the modes of economic valorization (GOLDHABER, 1992). The attention of the clients becomes the resource whose scarcity is now the basis of economic value and the target of competing companies.

There are many different types of attention, and it is possible to associate them with the different dimensions of the client that we have presented above. Thus, we can refer to the two dimensions of attention that were already identified and analyzed by Ribot as early as 1889: duration and intensity. To adapt these dimensions to the analysis of the digital economy, we propose to rename them "loyalty" and "opinion" (BOULLIER, 2006). Customer loyalty involves a long-term attachment that may have a low intensity but leads to the development of habit. Opinion, by contrast, implies a single event, one that detaches itself from the background habits and makes a strong impression on the customer. The "world of opinion" (BOLTANSKI & THEVENOT, 1991) and the "economy of opinion" (ORLÉAN, 1999) are directly related to this attention regime. In the case of consumers of audiovisual contents, it is their loyalty to the programs, to a television channel, that matters. The challenge for the programmers of the general channels is to aggregate new audiences, according to the time of day, while keeping those who already watch the channel. Capturing this audience (COCHOY, 2004) requires that the television viewers not be too vigilant concerning the actual content of the programs, that they accept the influence of the programmer and do not seek to make their own choices. The assumption here is that these viewers also watch the commercials that are slotted into the programs. Customer loyalty to a program should guarantee that the viewer of a show watches the ads slotted in between the segments of the show or between shows. But this was not true and foremost in these times of new consumers. The set top boxes, which only transmit the signals, do not make any difference here.

For the receiver of carefully selected programs (selected thanks to Tivo) the attention is focused on certain specific items and loyalty is no longer an issue. In this perspective it becomes possible to promote certain films, certain specific shows, and to attract viewers for specific events. We are here dealing with "opinion", which generates peaks of focused attention. Nevertheless, one may well imagine how uncomfortable Tivo might have felt playing the role of attention producer, except perhaps when it does so through the priorities and recommendations of its EPG.

In the case of subscribers to a service of integrated access, it is here again loyalty that is sought, this time not at the level of a program or a channel, but in the management and organization of the client's external relations. It is no longer a question of critically examining a range of offers, the rational agent who calculates and compares; the new Tivo client, in this phase, would ideally prefer to be guided towards such and such a service rather than having to compare each offer one by one. Guiding a subscriber

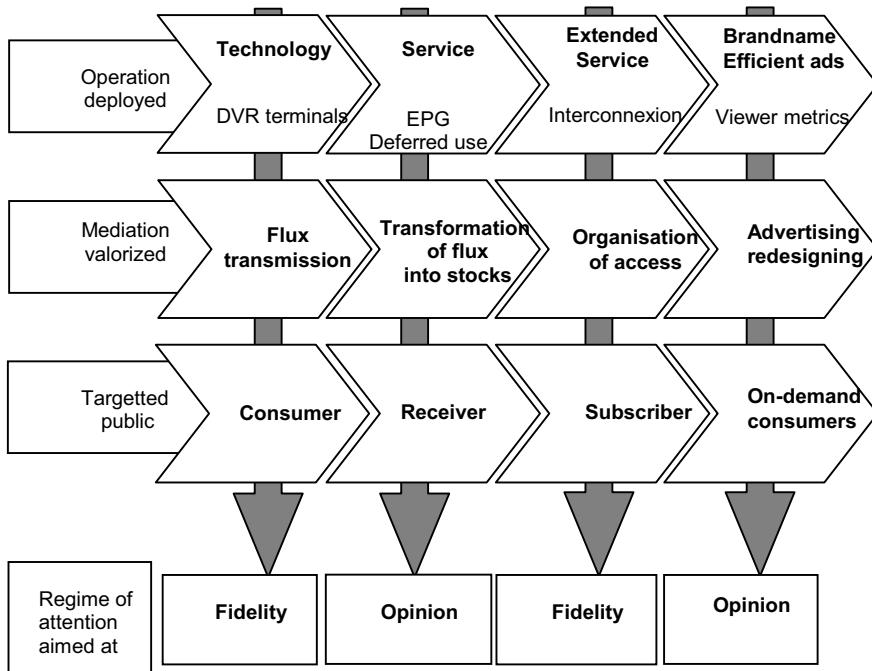
implies a sharp decrease in focused, targeted attention in favor of the duration of a permanent link.

When what is targeted is the client as a consumer (final stage in the figure), the goal can no longer be to capture the clients' attention to commercials by only taking into account their loyalty to certain shows. Commercials can be specifically designed for the new kind of viewers generated by the on-demand systems, which Tivo is the leader of. It is the intensity of the attention that should be mobilized and captured, by making use of the selective capacities of the viewers, such as they are described in the collected data. In light of this goal, the clients' dimensions as consumers and viewers are combined. In this new combination, the contents and semiotic forms of commercials tend to become far more coherent with cultural background of the viewers. From this knowledge based on a captive subscribers market, Tivo tries to transform itself into an advertising creation company, that is to say a content provider of some kind. This consumer/viewer/subscriber configuration is an attempt to capitalize on the previous statuses of the viewers. Tivo's "no choice strategy" may become successful, provided it can honor the promise of inventing new kinds of ads. Anyway, metrics have now become not only a way of monitoring TV audiences, but also a way of "producing" audiences, depending on the data available (for example, data on the viewers of certain shows can be used by broadcasters from other countries).

■ Conclusion

The approach that we have proposed makes it possible to combine the aspects summarized in the table below (business models, functional properties of the offer, qualities of the client that are sought and the involved regime of attention).

We believe that it is essential for the economics of the immaterial or the intangible to develop, with the help of semiotics and cognitive science, new methods for combining all these dimensions; because the success of these strategies - characterized by more uncertainty than those of the traditional industrial world – depends on the coherent alignment of these dimensions.

Figure 4 - Evolution of attentional modalities sought by Tivo

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