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Third-generation (3G) Mobile Television in Spain: Technological, Economical and Political Dimensions

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Abstract

Convergence introduces several transformations into Cultural Industries' structures and dynamics. The option to receive television signal into mobile devices with 3G technologies is one of these changes. This article analyzes new phenomenon from Political Economy of Communication focus. Methodology is based on qualitative analysis applied to Spanish case study. As a consequence, all 3G mobile television technologic, economic and political dimensions will be studied. The results show that new method of television broadcasting is more positioned to potentiate economic factors than media integration based on convergence logics. This new system is contributing to reinforce the commodification of cultural industries. In conclusion, 3G mobile TV assumes decisive importance since besides placing as the forth screen it is helping to re-define classic concept of television.

Keywords: Mobile Television; Convergence; Commodification; 3G; Cultural Industries.

1. Introduction

Digitisation is leading to major transformations in the culture industries. Although it is a technological process, its dynamics and its effects go far beyond the technical sphere. The consequences of digitisation are felt at all levels and have substantially altered the structures prevailing in both the audiovisual sector and the telecommunications industry.

A key phenomenon in this process is convergence, a two-sided concept: one technological and the other cultural. The former implies the confluence of all media and services in a single communication medium (De Sola Pool, 1983). This unifying tendency is engendering multifunction devices that combine a whole range of services in one terminal (Lawson-Borders, 2006). A good example is the integration of multiple features in the mobile telephone (voice, messaging, music, videos, radio, television viewing, camera, etc.), to such an extent that it has become a kind of electronic Swiss Army knife (Musso, 2008; Ling & Donner, 2009).

At the same time, we are witnessing the evolution of a culture of convergence that entails the shift from specific contents in a single medium to the flow of contents through multiple media channels, the growing interdependence of communication systems, a wide range of options in how to access media content and the emergence of a culture of participation that, through interactivity, is shaping an active public (Jenkins, 2006). From this perspective, convergence represents a change in the logic with which the media industries operate and in how audiences process media information and entertainment (Jensen, 2010; Dwyer, 2010).

It is therefore bringing changes to the way culture industry products are both produced and consumed (Deuze, 2007). The passive viewer is moving into a much more open and complex environment (Álvarez Monzoncillo, 2011), in which he or she enjoys a new power to choose what media to consume.

In this context, mobile devices – which include mobile telephones, netbooks, PDAs and handheld game consoles – have emerged as a new platform closely linked to the process of convergence (Katz, 2008). As a result, they are shaping a new window for the exploitation of audiovisual products, known as a "fourth screen" (Vacas, 2007; Aguado & Martínez, 2008; Orgad, 2009). The arrival of mobile television has thus been made possible, due to the technological capability of these mobile devices to receive television signals, allowing the television medium to overcome one of its final technological barriers: dependence on a fixed connection point.

2. Theoretical framework and methodology

The political economy of communication (Miège, 2004; Murdock & Golding, 2005; Bouquillion, 2008; Mosco, 2009; Goggin, 2011) provides the theoretical framework for our analysis. This perspective enables us to study this new form of television service provision at the intersection of three decisive dimensions: technology, economy and politics. We explore the role these three dimensions play in shaping this emerging form of audiovisual consumption, since their action and influence are crucial in determining the form it will ultimately take.

To continue, 3G mobile television market in Spain is examined as a particular case study. The period time for analysis is set during the first three years of this television model development, which is between 2007 and 2009. Indicators considered are revenues, subscribers and market share.

Therefore, the method used is based on qualitative analysis applied to case study (Albarran, 2010) of Spanish 3G mobile television market. This analysis is intended to examine how technologic, economic and political factors influence into this television model configuration in Spain. The objective of this article is to know the basis to build from which 3G mobile television. This model is understood as a challenge to rethink and design a new television model inside cultural industries frame set by digitisation.

3. Mobile devices and television services

Together with their technological potential, mobile devices have a whole range of characteristics that expedite the introduction of television services. First, these receivers have ubiquitous and permanent connectivity (Castells, 2006). They provide direct, immediate and continuous access to content or services,

regardless of time or place (Aguado & Martínez, 2008), thus making consumption easier and pushing back the boundaries of where viewing can take place. They are also firmly embedded within the "*always on*" tendency (Baron, 2008).

Second, mobile devices increase the public's autonomy. Their high level of adaptability to both the user and the context of use augments the individual's capacity to control the communication process (Katz, 2008). In this way, they have contributed to the emergence of a mobile lifestyle based on the wide margin of freedom they offer (Arminen, 2002). Mobility has thus become an essential aspect of daily life, and mobile devices now play an indispensable part in millions of lives (Rice & Katz, 2008). This indispensability is one of the underlying reasons behind the accelerated adoption of this type of technology (Do *et al.*, 2009).

Linked to this, another essential feature of wireless communication is related to the high social penetration of one of the cornerstones of mobility: mobile telephony (Ling & Donner, 2009). In Spain, the introduction of this kind of technology is 116,3 lines per 100 inhabitants, data from December 2010 (CMT, 2010b: 7). During the last two years this rate has increased 9,6 points. Together, there are 54,3 millions of mobile telephone lines in Spanish market. In the EU, Eurostat established the European average on 125 lines per 100 inhabitants in 2009.

A further characteristic in mobile television's favour is the integration of multiple services in a single support, as witnessed in mobile devices over recent years. As well as playing a key role in the process of technological convergence, mobile terminals have become multifunctional (Arminen, 2002) meta-devices (Aguado & Martínez, 2008), perfectly adapted to the consumption of media content. One of the most noteworthy potentials of mobile receivers is their interactive nature, which links them to the culture of convergence (Jenkins, 2006), since they give the user a new power to develop much more active ways of viewing television, based on direct participation and in conjunction with other users (Deuze, 2007).

In this context, the public is concerned with access to content and not with the networks that distribute it. This maxim stems from multiplatform and cross-media strategies (Albarran, 2010), designed to deliver content to viewers through a range of diverse technological avenues or channels, thus enabling audiences to choose the most appropriate, interesting or attractive option according to their own tastes, but whatever their decision, they will be consuming from the television offer (Goggin, 2011). Mobile devices have been incorporated into this formula, playing a leading role which has placed them firmly within the strategies of the television industry (Feldmann, 2005).

A fifth factor that has favoured the introduction of television in mobile devices is related to the individualism and personalisation inherent in wireless communication (Flichy, 2004; Álvarez Monzoncillo, 2011). The way mobile receivers have evolved as personal objects is one of their distinguishing features (Katz, 2008). Spanish data from 2005 reveal that exclusively personal use of mobile terminals accounted for 71.6% of

usage, compared with 5% for purely professional purposes (Castells, 2006). This has opened up a channel to provide and exploit value added services focused on the consumption of entertainment and culture. Adaptation of content to users' preferences and peculiarities is also viable as a result (Feijóo-González & Gómez-Barroso, 2009). Because of its personal components, mobile television ties in perfectly with the shift from broadcasting to narrowcasting, witnessed in recent years by the audiovisual sector as part of the post-television dynamic (Missika, 2006) that is leading to greater market segmentation and fragmentation.

Finally, a sixth feature that conclusively opens up the way forward for mobile television concerns technological advances in mobile devices. These developments have followed three fundamental processes. The first of these is the appearance of third-generation or 3G technology (UMTS), with a data transmission capacity and speed close to that of DSL that makes video signal broadcasting viable (Wilson, 2006). The second is based on the convergence of mobile devices with Internet standards through the WAP protocol, thereby providing a boost for mobile Internet. Finally, the third process stems from the development of standards, in particular the European DVB-H and DMB standards, adopted by Japan and South Korea, for the reception of television signals by mobile terminals through terrestrial networks. The combination of these three technical advances has turned mobile receptors into terminals for media and cultural consumption, and has enabled them to become platforms for the distribution of television content.

Mobile television can take one of three formats, depending on the type of television signal transmission: podcast services through asynchronous video in which the user downloads content to be viewed later, mobile digital terrestrial television (DDT), based on the DVB-H standard in Europe, and mobile television via streaming using 3G technology. This paper examines the third of these, due to its particular interest and relevance.

4. The technological dimension of 3G mobile television

The emergence of third-generation or 3G technology in 2001-2002 offered the possibility to integrate multimedia services in a mobile terminal (Rice & Katz, 2008), the most notable of which are video downloads and television viewing. This advance fostered the convergence in mobile devices of the culture industries —mainly those linked to the mass media system— and the telecommunications sector. Mobile television thus arose once video began to be regarded as a 3G "killer app" (Bouteiller, 2005). Vodafone and Orange were the first companies to offer this type of mobile television in Spain in 2006, and today practically all operators provide this service.

It is important to note that because mobile television is based on 3G technology, it operates by means of point-to-point or unicast transmission, which limits the number of users that can receive the television

signal simultaneously. However, despite its shortcomings, the unicast nature of 3G allows for maximum personalisation of media content, a feature that represents a considerable attraction in mobile television (Urban, 2007).

Although terminals are constantly being improved, 3G-based mobile television has several technological limitations. First, the wide bandwidth required to receive audiovisual content can, on occasions, still cause difficulties in signal transmission (Feijóo-González & Gómez-Barroso, 2009). Second, image quality is low due to the high level of compression required (Bouteiller, 2005). Third, battery capacity in today's mobile devices does not give a great deal of autonomy when audiovisual content is consumed. And finally, the size of mobile terminal screens requires language, sound and programme duration to be adapted to make efficient communication possible (Baron, 2008). All these issues represent challenges to 3G mobile television, as they could raise barriers that hinder its consolidation.

The final important point linked to the technological dimension of this type of mobile television refers to the low level of 3G penetration in Spain, and in general, across the whole of the European Union. Only 38% of Spanish mobile phone subscribers owned a 3G mobile handset (Fundación Orange, 2010: 19). In the EU, the presence of this type of lines was 39% during 2009. In the same period, Japan offered an index of penetration of 87%.

5. The economic dimension and 3G mobile television business models

With regard to the economic dimension, 3G mobile television came out of the stability in the voice service market, now firmly consolidated with a high penetration of mobile devices (Fernández & Usero, 2009). This is evidenced by a fall in the year-on-year increase in revenue from mobile telephony in recent years (table 1). In Spain, the 18% growth rate in 2003 had dropped to -3.5% by 2009 (Fundación Orange, 2010: 59). Faced with this saturation in the primary wireless communication business activity, telecommunications operators have sought out new strategies to raise average revenues per subscriber (Tsai, Lo & Chou, 2009). Within this context, transmission and data management services have been strengthened and efforts have focused on incorporating audiovisual services, such as television, in mobile terminals activity (West & Mace, 2010). By turning to audiovisual content, telecommunications operators are seeking an avenue through which to increase their profit margins and expand and diversify their.

Table 1. Evolution of mobile telephony revenue in Spain and growth rate for the 2003-2009 period

	Revenue from mobile telephony (billions of euros)	Growth rate (%)
2003	8.8	18
2004	10.3	17
2005	12	16
2006	13.4	12
2007	14.8	10
2008	15	1.2
2009	14.5	-3.5

Source: Fundación Orange, 2010: 59.

During 2008 and 2009, revenues generated by data traffic (which includes 3G mobile television consumption) increased 30% within Spanish mobile telephony market. This data represents 10% from total Spanish mobile operator business data in 2009 (Fundación Orange, 2010: 63).

Consequently, the economic dimension has also driven convergence between telecommunications sector and the mass media system. This collaboration, as with the process of commodification (Mosco, 2009), represents a key factor in the improvement and optimisation of the financial profitability of culture industry products. In addition, mobility stimulates the agents involved to move strategically to adapt to the volatility inherent in communication environments, which makes the value chain considerably more complex (Musso, 2008; Álvarez Monzoncillo, 2011).

Within these parameters, 3G mobile television is conceived as an added value service (Bouteiller, 2005). Its role is therefore not so much one of a principle object, but rather a complementary element in the commercial strategies employed by telecommunications operators. This model is similar to the triple play model (Janssen & Mendys-Kamphorst, 2008), which has contributed greatly to the expansion of cable and ADSL by including voice, Internet and television services in the same package. In this case, audiovisual content forms part of a broader offer of services. This strategy confirms that the classic pattern is being transformed, with television autonomy becoming dependent on other sectors not only from the field of telecommunications but also from other areas of the culture industry. In fact, together with the pursuit of economic profitability, underlying this change is the conviction that mobile television is associated with specific use that does not follow the pattern of substituting other screens and media. Moreover, the evolution of this technology shows that the success of mobile devices is due to their position as a complement to other forms of communication (Arminen, 2002).

A further significant aspect related to the economic dimension refers to the business models in place (Picard, 2005). In the case of mobile television based on 3G technology, telecommunications operators are currently leading the field, since they control most of the stages in the value chain. As managers and owners of the distribution networks that deliver the audiovisual signal, these agents play a central role in the 3G mobile television communication process (Urban, 2007).

In addition, there are two central features to the 3G mobile television business model, namely content and pricing system. Content is clearly a key factor in connecting with the public's interests and generating the demand that will consolidate 3G mobile television (Marcus, Cereijo Roibás & Sala, 2010). The creation of content formats adapted to mobile reception and that contribute differentiating added value is essential if 3G television services are to take off (Wilson, 2006; Baron, 2008; Feijóo-González & Gómez-Barroso, 2009). This becomes even more crucial if we consider the multifunctional character of these devices, since television has to compete against other mobile applications integrated in mobile terminals (video games, Internet, music, etc.), in order to capture the user's attention (Vacas, 2007).

In Spain however, telecommunications operators have chosen to offer content and channels that are already distributed in other ways, with slight adaptations in some cases (Aguado & Martínez, 2009). Audiovisual products specifically aimed at and designed for mobiles are, for the moment, an experimental phenomenon. Consequently, mobile terminals are developing as simply one more platform for the distribution, with a logical *cross-content*, of content designed for other media. They work as a “mirror window” of conventional programming, and bypass the opportunity to offer differentiating added value (Vacas, 2007). The capacity for producing original content is growing more slowly than the capacity for transmission.

Bearing in mind the link between mobile television viewing and travelling and commuting (Vangenck *et al.*, 2008; Lejealle, 2009), or killing time (waiting in airports, train stations, etc.), previous studies have identified three main content blocks that are most highly valued and demanded by the public: news, sports (Urban, 2007) and traffic information (DNX, 2007). At the same time, 3G television is also a suitable media for local advertising (Balbi & Prario, 2009) and proximity marketing, since it allows commercial information to be inserted when the user is close to a point of sale (Vacas, 2007).

The other essential component of the business model concerns pricing. The capacity of the agents involved to set attractive rates is key to the success of 3G mobile television (Urban, 2007), especially if we consider that accessibility and flexibility of payment systems are largely responsible for the rapid spread of wireless communication (Castells, 2006). Indeed, one of the barriers to expanding consumption of audiovisual content in mobile terminals lies in the dissatisfaction felt by many users with the dual pricing model

currently operating in the Spanish market, which sets a fixed subscription and an additional amount for each video downloaded (DNX, 2007).

Pilot studies and market research suggest that a fixed monthly subscription to a wide package of channels or programmes without additional charges might be the most popular pricing model for mobile television (IDATE, 2008). As far as free models are concerned, market agents and advertisers will find it difficult to finance the development of mobile television without a large audience, and they will be incapable of capturing the public's attention if content is not attractive and of high quality.

6. The political dimension of 3G mobile television

To date, the 3G mobile television context has not had a single legal framework in Spain that responds to the challenges raised by convergence. In spite of the interconnections imposed by this phenomenon, the present culture industry arena is governed by a profusion of different standards and legislation (Paris, 2006). This situation has led to different regulatory systems operating for the telecommunications and the audiovisual sectors.

As an added value service of wireless communication, 3G mobile television falls within the frame of telecommunications policies. The type of transmission network carries more weight than the type of content delivered in determining the legal position of mobile television, a situation which has diverse implications. Telecommunications services are considered from the point of view of general interest, linked to the perspective of social and economic development, and not from the perspective of a public service, which substantially alters the conditions and scope of television activity.

First, by focusing on general interest, telecommunications policies –where mobile television is embedded– pivot on values such as innovation, competition, economic growth and employment (Cuilenburg & McQuail, 2003), demonstrating that industrial or commercial factors take precedence over cultural factors. Second, because mobile television lies within the field of telecommunications policies, it is directly connected to the processes of liberalisation and deregulation that dominate the dynamics of action in the sphere of telecommunications (Musso, 2008). This dynamic establishes competition between operators as the driving force in the sector, under the absolute primacy of the market. As a result, telecommunications and by extension mobile television, are placed firmly within the liberal economic model (Bouquillion, 2008) in which public intervention is minimal. This fact explains the absence of any measures to promote mobile television in the Spanish context.

A further important aspect in reference to the political dimension concerns the mechanisms employed in the assignment of 3G licenses (Whalley & Curwen, 2006). Two models have been used within the EU

context: beauty contests and auctions (Fuentelsaz, Maícas & Polo, 2008). Spain selected the beauty contest formula to assign licenses in December 2000. This process involves drawing up a set of criteria (available financial resources, research investment, population coverage, prices, quality, technology, competitiveness, etc.) in order to evaluate candidates and select those that best meet these criteria. Revenue from this allocation system was substantially lower (table 2). The available 3G licenses in the Spanish market were to assign to Telefónica Móviles, Vodafone, Orange and Xfera (led by ACS and Telia Sonera) for the total amount of €523 million, equivalent to only 13 euros per capita.

In contrast, governments adopting the auction model have obtained very high license fees, in some cases exorbitant, as for Germany and the UK, where amounts of €50,490 million and €37,188 million were recovered, respectively (table 2). These figures, which represent a per capita cost of over €600, may have serious consequences for sector stability (Fuentelsaz, Maícas & Polo, 2008), since securing returns on these high investments appears to be extremely complicated for telecommunications operators (Wilson, 2006).

Table 2. Allocation of 3G licenses to telecommunications operators in Europe

	System	Number of licences	Per capita cost of each licence (in euros)	Total revenue (millions of euros)
Germany	Auction	6	615	50.490
Great Britain	Auction	5	623	37.188
Italy	Auction	5	211	12.161
France	Beauty Contest	3	31	1.857
Spain	Beauty Contest	4	13	523
Portugal	Beauty Contest	4	40	400

Source: Fuentelsaz, Maícas & Polo, 2008: 444-445

A final comment on the political dimension concerns the approval by the European Union of updates to the GSM Directive, first adopted in 1987, that will give more flexibility to the management of the radio spectrum used for mobile communication and enable 3G technology to use new frequency bands previously reserved for second generation technology (GSM). This decision, as well as freeing up space for new services and increasing speed and bandwidth, will also lead to a reduction in operators' network costs. For the EU as a whole, this saving is estimated at €1,600 million. The updated Directive, which came into force in October 2009, aims to revitalise and boost wireless broadband services, including mobile television, which European institutions consider to be one of the essential drivers behind economic recovery.

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7. 3G Mobile television in Spain (2007-2009)

Spain occupies the leading position in the use of mobiles for video viewing: in 2008 12.8% of subscribers used this service, a higher percentage than the average for the European Union (9.2%) and ahead of Italy (11.2%), France (7.3%) and even the United States (6%) (Fundación Telefónica, 2008: 167). Revenues from 3G mobile television increasing from €8.69 million to €18.8 million between 2007 and 2009 in Spain (table 3) (CMT, 2010: 133). However, this type of broadcasting accounted for only 0.5% of the total Spanish television market in 2009.

Table 3. Revenue from television delivered by non-subsidised transmission in Spain (in millions of euros).

	2007	%	2008	%	2009	%
Satellite TV	1,522.41	28.6	1,542.27	30.3	1,249.4	30.1
Cable TV	348.92	6.6	346.68	6.8	327.5	7.9
IPTV	130.50	2.5	185.05	3.6	187,8	4.5
Terrestrial TV	3,312.34	62.2	2,993.88	58.9	2,361.9	57
Mobile TV (3G)	8.69	0.2	16.22	0.3	18.8	0.5
TOTAL	5,322.85	100	5,084.10	100	4,145.4	100

Source: CMT, 2010: 133

Although the overall revenue figure has increased sharply, the number of 3G mobile television subscribers in Spain has fallen slightly. From 2007 and 2008 the number of subscribers fell by 8.6% to 269,919 (table 4) (CMT, 2009a: 295). However in 2009, the figure rose slightly by 28.38%, reaching a total of 346,528 clients (CMT, 2010: 145). There are various reasons for this irregular behaviour, including the weak consolidation of mobile television, the scant innovation in the content offered, the pricing system or the

poorly defined business model followed. With regard to this final point, the end of a series of promotions offering free access to mobile television services and the subsequent introduction of payment formulas go some way to explaining the fall in user numbers. Despite this, 3G mobile television subscribers still account for 7.8% of all pay television clients in Spain.

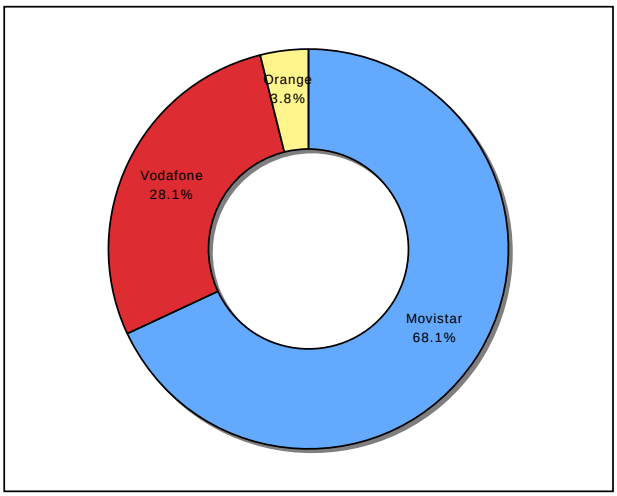
Table 4. Number of subscribers by television system in Spain

	2007	2008	2009
Satellite TV	2,065,093	2,034,865	1,845,800
Cable TV	1,345,936	1,459,015	1,439,671
IPTV	569,195	702,886	794,165
Mobile TV (3G)	295,246	269,919	346,528
TOTAL	4,275,470	4,466,685	4,426,164

Source: CMT, 2010: 145-146

As regards the position of telecommunications operators, the Spanish market is currently led by Movistar (Telefónica Móviles) with 68.1% of the 2009 total (figure 1). This company is followed by Vodafone. Its market share, by number of subscribers, is 28.1% of the 2009 total (CMT, 2010: 322). Finally, the last position is occupied by Orange, which offers a package of 50 channels at a monthly cost of €6.96. This operator lays a long way behind with only 3.8% of all Spanish mobile television subscribers (figure 1).

Figure 1. Market share percentages for 3G mobile television in Spain (2009).



Source: CMT, 2010: 324

8. Discussion and Conclusions

A priori, 3G technology presents healthy future perspectives for the development of mobile television, since its characteristics (ubiquitous connectivity, autonomy, high social penetration of mobile telephony, integration of services, personalisation and technological advancement) are highly suitable for mobile television's purposes. However, its development and consolidation are still unknown quantities, firstly because many of the key aspects related to 3G television, such as business models or content, are veiled in uncertainty. Furthermore, it should not be forgotten that in the final instance, generalised use of this type of mobile television will depend on the social use subscribers make of it (Jenkins, 2006).

The current configuration of 3G mobile television in Spain enables us to identify third key features. Firstly, this model of mobile television is taking the form of a complement rather than an object in itself. Following the triple play example, television is operating as just one service within a broader package, and as a result what we are seeing is its loss of independence and autonomy, which implies a shift in the classic parameters of the concept of television.

Secondly, 3G mobile television in Spain is heading towards major commodification. An economic vision of television in mobile platforms is therefore being imposed, an approach that ties in with the general tendency of audiovisual digitisation where technical and financial aspects are paramount (Freedman, 2008). And because 3G mobile television is firmly set within a markedly economic framework, it will become even more entrenched in this approach.

Finally, this case study also indicates that 3G mobile television in Spain is even unstable and is in a very early stage of his development potential. This new form of television business model, specific content offerings articulation and legal regulation are still undefined. Although we found a good basis in terms of equipment and especially critical mass of users, this type of television penetration is low. In three years, it has achieved only 0.5% of the revenues of Spanish television market and 7.8% of pay television subscribers. These figures are increasing in the period considered, but it is a slow increase. It will be necessary to study whether the new mobile media, especially tablets (as iPad), would be able to boost this TV model witch still remains in standby.

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