

BACKGROUND DOCUMENT ON OPPORTUNITIES AND CHALLENGES FOR EUROPEAN CINEMA IN THE DIGITAL ERA

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Cinema has faced up to many challenges, leaving behind silent films, adopting Technicolor, holding its own after a shaky start against the increasingly prevalent and competitive television, video and DVD. The so-called "digital revolution" is the next frontier!

Sound was first to be digitised in the 70's, then the whole post-production chain turned digital and now production is increasingly using digital technologies; new digital distribution platforms are also emerging (VOD, IPTV, mobile phones...) but in Europe theatrical distribution is just starting to move towards digitisation.

The consequences of the digital revolution for the European audiovisual market required a radical rethink of the priorities and structure of the European support programme MEDIA 2007. The programme follows and supports market developments with regard to digitisation. Where required its role is to put in place measures to accompany the changes that digitisation is producing in the audiovisual sector at all stages of the production and distribution chain.

HOW DOES DIGITAL IMPACT THE FILM INDUSTRY?

Production and post-production

Thanks to new cameras and formats (Digital Betacam in 1993, DV in 1995 and HD in 1998), directors (of photography) are increasingly embracing digital technologies to shoot their films. These new tools have in particular made it possible for a number of low-budget independent films to exist.

Post-production was dramatically transformed by the digital revolution, which gave the film industry amazing new possibilities in terms of virtual editing (AVID), special effects and colour grading.

The offer of films on digital nevertheless varies greatly from country to country. A digital master is already available for 90% of US production as a whole, which means all new Hollywood productions as well as most independent ones. This is far from being the case in Europe. In the European country with the biggest production capacity (France), less than half of new films are available on digital¹. There is a lack of data in other European countries².

With some technical adaptations a digital source master (DSM) can be used for all formats (cinema, VOD, DVD, digital TV...). It would therefore make sense to encourage the "pay once" approach, whereby one digital source master would be produced for all types of exploitation.

¹ The number of exclusivity films digitally released in France increased from 30 in 2007 to 50 in 2008: 35 of which were released by Hollywood studios, 10 by European majors and 5 by independent distributors.

² Another indicator could be that each of the 25 cinemas that benefited from Europa Cinemas' digital bonus in 2008 screened between 10 and 90 different European films on digital.

Ideally the digital source master should be made at the (post-) production stage to avoid the multiplication of masters and of costs. It is important that the director/producer should be able to control the quality of his/her final work and therefore ensure its integrity throughout its subsequent exploitation windows. Moreover it would clearly not be cost-effective for every distributor to make and to pay for his/her own digital master.

It is essential for producers to be encouraged to envisage digital distribution of their works and to earmark a budget for digital mastering in all their future production budgets. Eurimages has been trying to encourage its beneficiaries to do this with its digitisation scheme³. The MEDIA programme is also supporting a number of training initiatives on digital technologies for producers.

The Commission considers that Member States, whose film agencies focus on production support, have a crucial role to play in this respect. Member States should ensure that a significant proportion of future national productions are available on digital. Digital masters will be needed to guarantee the future of European cinema in all its diversity.

Another possibility facilitated by digital is 3D production. This is not a new phenomenon since this is the third time in history that 3D has appeared on cinema screens. A number of cinemas/multiplexes are installing digital equipment to be able to screen 3D productions⁴ and are for the time being making extra revenues thanks to an increased ticket price⁵. These cinemas are mainly exhibitors of US content, since most 3D productions are now coming from Hollywood. There have nevertheless been a few European experiences (Fly me to the Moon, Oceanworld 3D) and more are expected to come, but 3D production would need to be developed in Europe if the trend were to be confirmed.

Distribution

A new trend is changing our economy and will change the way we watch TV and films, like the internet and mobile technology have changed the way we communicate and read the news. This trend is the convergence between traditional content and digital technology. This 'convergence' can create new business opportunities, new jobs and new consumer services.

The online distribution of creative works such as music, films, video games and publishing content is transforming the creative industries and driving the take-up of broadband based services in Europe and worldwide. This de-materialisation in the distribution of creative content is shaking up the business models of the creative industries, with both potential opportunities and potential losses. It is also introducing new players into the media industries' landscape.

Digital technologies can facilitate the circulation of European works throughout the world by making cross-border distribution easier and cheaper and ensure that niche and alternative content reaches its potential audience.

³ Producers of Eurimages-funded films can apply for digitisation support for the production of DCI-compliant digital masters (minimum 2K) intended for digital cinema projections, VOD, satellite distribution and high resolution internet distribution. See http://www.coe.int/t/dg4/eurimages/Support/SupportDigit_en.asp

⁴ At present 5,000 screens worldwide are 3D-enabled, a tally expected to double by the end of 2009, according to Dodona Research (July 2009).

⁵ Whilst previously the number of prints for 3D films was limited, France saw in 2008 two significant releases: "Fly me to the moon", distributed by MK2 on 51 3D screens, had one of the best admission per screen ratios in 2008 and "Voyage au centre de la Terre" scored on 31 3D screens four times more admissions per screen than cinemas having released the film in 2D.

The European Union (EU) put convergence at the heart of its i2010⁶ strategy for the Information Society to make Europe a low carbon knowledge economy. The European Commission launched a series of initiatives:

It adopted a Communication on Creative Content Online⁷ and launched the "*Creative Content Online in the Single Market*" initiative to create a stakeholders' discussion and cooperation platform, the so-called "Content Online Platform".

In its Directive on Audiovisual Media Services⁸, the Commission also updated the rules on audiovisual services for digital content, which means the same rules now apply to the same kind of services whatever the delivery platform is (be it traditional TV, internet TV, TV on mobile phones or other devices).

The Directive is consistent with other Commission initiatives such as the proposed European strategy on mobile television, the plan to maximise the benefits of the digital dividend and the MEDIA 2007 support programme (see below).

Digital distribution is also a unique opportunity to revive and distribute more widely archives and classics. Digitisation should facilitate and enhance the promotion of our common European audiovisual heritage, in particular through the internet. This is highlighted in the Recommendation of the European Parliament and of the Council of 16 November 2005 on film heritage and the competitiveness of related industrial activities⁹.

Digitisation also creates new challenges regarding the preservation of films after their initial commercial exploitation. For Hollywood studios, they begin their life as a "long-term studio asset"¹⁰. For film heritage institutions, they become a cultural asset to be preserved. This involves new processes and new costs. 80% of silent films are lost. Films in a digital format should not meet the same fate. The challenges of the digital era for film heritage institutions will be addressed, among other issues, in the Second Implementation Report¹¹ on the Film Heritage Recommendation in 2010.

The creation of a European digital library (www.europeana.eu) was also part of the i2010 strategy, which aims at making European information resources easier to use in an online environment. It builds on Europe's rich heritage, combining multicultural and multilingual environments with technological advances and new business models. The audiovisual strand

⁶ The i2010 strategy is the EU policy framework for the Information Society and Media. It promotes the positive contribution that information and communication technologies (ICT) can make to the economy, society and personal quality of life. Given the importance of ICT for today's economy, i2010 is a key element of the Lisbon strategy for growth and employment.

⁷ Communication of 3 January 2008: http://ec.europa.eu/avpolicy/other_actions/content_online/index_en.htm

⁸ Directive 2007/65/EC of the European Parliament and of the Council of 11 December 2007 amending Council Directive 89/552/EEC on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the pursuit of television broadcasting activities

⁹ Recommendation of the European Parliament and of the Council of 16 November 2005 (2005/865/CE).

¹⁰ "The Digital Dilemma – Strategic issues in archiving and accessing digital motion picture materials", drafted by the USA Academy of Motion Picture, Arts and Sciences in 2007.

¹¹ See question 12 of the questionnaire on film heritage sent to Member States: http://ec.europa.eu/avpolicy/reg/cinema/report_2/index_en.htm

of Europeana is nurtured by the European Film Gateway¹², a Best Practice Network funded by the European Commission under the eContentplus programme. Its aim is to make film collections accessible through a common access point.

In terms of theatrical distribution the situation is far more complex since digital equipment represents a substantial cost for exhibitors. Nevertheless digital cinema also gives them access to new opportunities by allowing more flexibility and more diversity: alternative content (live events), local advertising, 3D films, interactive films, original and dubbed versions... Cinemas of the future could in certain cases turn into "cinemas-on-demand" and easily adjust their programming to better meet the demands of their mainstream and niche audiences. For multi-screen cinemas a more centralised theatre management system (TMS) could even help exhibitors reduce staff costs.

As far as theatrical distributors are concerned they should make big savings on the print, delivery and storage costs, since a dematerialised digital copy can be as much as ten times cheaper than a 35 mm print. Print costs should therefore no longer be an obstacle to the circulation of films. All this is nevertheless subject to the future business model and organisation of the digital distribution market.

OBSTACLES TO THE DIGITAL ROLL-OUT

In spite of the savings and opportunities mentioned above, digital take-up has been slow in cinemas. There were 2428 digital screens in the 32 MEDIA countries¹³ (out of 30.000) and 6540 (out of 39.000) in the USA as of mid 2009¹⁴. Even if the rate of equipping cinemas has increased in Europe and now overruns the number of Asian screens, there were only 1449 digital screens as of end 2008, up from around 1090 in mid-2008.

According to Dodona research (July 2009) 12,000 screens have now converted to digital projection of a total of around 110,000 worldwide and almost 20% of global cinema screens will be converted by 2012.

Standard

The move towards digital cinema distribution was first halted by the lack of a common standard.

The Digital Cinema Initiative (DCI) was launched in 2002 by the seven US majors to define the technical specifications of digital cinema distribution. These specifications were published in July 2005 and then turned into standards by the Society of Motion Picture and Television Engineers (SMPTE): 2k as resolution (4k for screens over 15m) and JPEG 2000 as the compression format for d-cinema to offer an improved cinema experience to audiences over

¹² EFG is a 3-year project which started on 1st September 2008. Its aim is to develop an online portal, providing direct access to about 790,000 digital objects including films, photos, posters, drawings, sound material and text documents.

¹³ The following countries participate to the MEDIA programme: all EU members (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK) + Iceland, Liechtenstein, Norway + Switzerland + Croatia.

¹⁴ Source: Screen Digest

soon-to-be-available technologies (HDTV Broadcast, HD DVD and VOD). They are now being adopted as international standards by the International Standard Organisation (ISO) in Geneva.

If adopted the DCI projection standard would have the advantage of proposing a universal, secure and high quality system of digital projection. A unique standard is always more (cost)-efficient than the addition of several standards (4k, 2k, HD, 1.4k, 1.3k, 1.1k...), in particular in the context of a Single Market. 2k has now been taken up by most Member States and professionals¹⁵.

Nevertheless it has implications in terms of costs: 2k/4k represents a huge investment¹⁶ for exhibitors, who will not necessarily reap benefits from it in the short run (except perhaps from 3D screenings).

Part of this cost is due to security devices imposed by the DCI to fight piracy. Some fear that DCI security provisions will also give distributors more control over the cinemas' programming (by limiting the screening of their films to a specific screen or slot and by receiving the logs thereafter, enabling them to check if the screening conditions were respected). As it happens exhibitors are very attached to their programming freedom.

It is important that nobody takes control of access to the d-cinema content: service providers should be allowed access to all theatres and content owners should be free to select their distribution service providers. To date proprietary DLP technology has been licensed by Texas Instruments to only three manufacturers: Barco (Belgium), Christie (USA) and NEC (Japan). This means that only a limited number of DCI-compliant projectors can be produced every year. Following Sony and its SXR4 4k, Texas Instruments has now also announced the launching of a 4k chip.

Irrespective of the standard(s) finally adopted, it is essential that the different technologies should be inter-operable. Only inter-operability can enable producers, distributors and exhibitors to seize the opportunities of digital cinema and create a digital Single Market for European films. With the dematerialised transport of digital copies, the circulation of European films should indeed be easier: in theory (provided the rights and windows issues are solved) the same DCP¹⁷ could travel from one country to another, in its original or local version (in which case subtitles could easily be added).

This Europe-wide circulation can only come about if data-bases of equipment certificates/trusted device lists (listing compliant digital equipments and therefore enabling the KDM¹⁸ to link the film file to the right equipment/screens) are inter-operable. Following the example of the French CST¹⁹ and the German Fraunhofer Institute, who worked together on the

¹⁵ The European Film Agency Directors declared as early as October 2006: "The EFADs therefore believe that it is absolutely necessary that the largest possible catalogue of new and classic European films is available in the appropriate HD digital format for VOD, web and cable-based home video services, or in the DCI-compliant 2k to 4k digital format for theatrical screening".

¹⁶ Around € 60,000 (projector and server) per screen + installation costs + associated costs (cabin adaptation, cable extraction, air conditioning, lamps...) + maintenance costs (higher than for 35 mm) for a shorter (7-10 years) lifespan than a 35 mm projector.

¹⁷ DCP = Digital Cinema Package, equivalent of a print in the digital world

¹⁸ Key Delivery Message: key sent electronically including the film code and the relevant certificate, which enables the exhibitor to read/open the film file

¹⁹ Commission Supérieure Technique de l'image et du son

technical specifications of their national data-bases of certificates, (professionals of all) Member States should coordinate the establishment of these data-bases and ensure their interoperability with other national systems in Europe. As suggested by the Goudineau report²⁰ should a pan-European data base be established? To answer this question a consultation with professionals is needed.

Business model

If digital take-up has been slower than foreseen in Europe²¹ since the launching of the standardisation procedure at the ISO, it is of course due to the recent financial crisis, which has made it more difficult for exhibitors to access credit and for integrators to finance their deals, but also to the lack of a business model that is adapted to all (types of) cinemas.

Indeed the digital cinema revolution is based on a major paradox: the (big) investment has to be made by exhibitors, but the savings will be made by distributors.

In order to solve this paradox the US film industry has put in place the so-called Virtual Print Fee (VPF) model. This business model has been elaborated by third party investors/integrators to address the issue of how to share the costs and the benefits. These third parties collect (part of) the distributors' savings in the form of VPFs to contribute to the digital equipment of the participating screens. The role of these intermediaries varies but financing digital equipment and providing digital distribution services are at the heart of their activities.

As the VPF system is based on the week of release (i.e. is it a first run or not?) and the turnover rate (i.e. how many different films are shown per screen?), it is well adapted to the multiplexes but not necessarily to the more diverse range of smaller or arthouse cinemas. Single screen theatres with a low turnover and smaller cinemas screening films several weeks after their initial release may not generate enough VPFs to benefit from the existing deals.

Some cinemas with little "VPF-earning potential" have reacted by trying to work with each other and "mutualise" the costs in some way. This is the case of the Cinema Buying Group (CBG), which covers 6680 independent screens in the USA and Canada under the aegis of the US National Association of Theatre Owners (NATO). CBG has stated its position very clearly: "By fixing the digital financing model to print costs, however, the industry imperils a substantial swath of exhibition that has not historically "cost" distributors in print costs. (...) it is short-sighted to penalize exhibitors who have not historically cost distributors – but *have* generated box office revenues or otherwise contributed to the strength of the movie industry in North America"²². Lower-cost equipment and used equipment are considered as possible options.

Similarly, after a call for "expressions of interest", the British Cinema Exhibitors' Association announced its plans to establish a funding group to secure finance to allow small and medium-sized UK cinema operators to purchase digital cinema equipment. To date 450 screens have joined the initiative.

²⁰ Adieu à la pellicule? Les enjeux de la projection numérique, Daniel Goudineau, August 2006.

²¹ In EU 30 the number of digital screens increased from 229 in 2005 to 834 in 2007 whereas in the USA it went from 324 to 4632 over the same period.

²² The Mission of the Cinema Buying Group-NATO (January 2009), p.10.

In France a commercial deal signed with third party investor Ymagis has enabled the Cinéville circuit to include cinemas that are members of a programming network belonging to the same mother company. The agreement covers all types of cinemas (from multiplex to one-screen theatres), which will mutualise "contributions to the digital transition" with each other.

It is therefore clear that digital equipment represents a cost that can be borne by cinema chains and multiplexes but that is often out of reach for smaller independent (frequently arthouse) cinemas.

Compared to the US situation (where most of the film industry is vertically integrated and the market share of domestic films is 95%), Europe has a diversity of operators and of situations that makes it more difficult for global deals or national roll-outs to be implemented. According to estimates 20,000 screens (out of 30,000) in Europe could be equipped through VPF deals.

Barely 10% of European cinemas are multiplexes, compared to 35% in the USA²³. Moreover 31% of European screens are in single-screen cinemas. This will slow down the digital roll-out as the VPF model is not adapted to those cinemas and their limited levels of activity undermine any profitability of costly digital equipment.

The problem is even more acute in the new Member States, where the percentage of screens in single-screen cinemas is 60%, and indeed over 80% for some countries. There is indeed a similar discrepancy in terms of inhabitants per screen: whereas in 2007 there were 15,977 inhabitants per screen in Western Europe, there is one screen for an average 50 926 inhabitants in the Central and Eastern European Member States²⁴. Incidentally this also indicates further development potential in terms of screen numbers and digital cinema could provide an opportunity in this respect (in spite of its cost).

The majority of European cinemas have between 2 and 7 screens. This is where the great diversity of European exhibition lies: from local two-screen cinemas mainly exhibiting national and US content to urban multi-screen theatres with majority European programming, there is a wide range of exhibition categories/companies for which there is no one-size-fits-all solution.

Some European exhibitors are even more hesitant about investing in digital equipment since over the last 15 years they have made substantial investments in the upgrading of their facilities and in the creation of mini/multiplexes. In 2008 37% of the screens in MEDIA countries were in multiplexes compared to 9.4% in 1994 and this has more than doubled between 2000 and 2008.

Unlike sound and colour when these first appeared, any improvement in quality with digital will not necessarily be visible to the viewer (except if compared with used celluloid prints). In any event, it does not justify a long-term increase in ticket price, which the audience would be unlikely to accept. Advantages like flexibility and diversity of programming do not immediately translate into extra revenues. Only 3D and opera live screenings have so far clearly enabled exhibitors to ask for a higher price and to generate new revenue streams. It is however questionable whether the 3D effect will last.

²³ In 2007 (Media Salles)

²⁴ European Audiovisual Observatory, Yearbook 2008, volume 3, p. 18.

Alternative content is sometimes presented as a golden opportunity for cinemas: it could indeed make some of the off-peak hours more profitable and attract new audiences, but cinemas are mainly made to screen films and are supported as such. Film is and should remain the core business of cinemas, in particular the ones that benefit from public support. Moreover film distributors might be reluctant to contribute to the digital equipment of cinemas that will use it to project alternative content rather than films.

An important corollary issue is that the digital transition will also have a social cost (in terms of staff redundancy for projectionists and in labs) and training needs will have to be met.

As far as **theatrical distributors** are concerned they should be the main beneficiaries of the digital revolution: a DCP is much cheaper than a 35 mm print (€ 150 instead of € 1.000 on average). At first sight this cost reduction will be particularly beneficial to smaller distributors, who release films on a small scale. As they used to pay much more per 35 mm print (up to € 2.000) than the big distributors, who could benefit from economies of scale, they will proportionally save more money on digital copies.

Nevertheless the savings made by the big distributors could be invested in further promotion and advertising and vertically integrated studios will also have the opportunity to reinvest in production directly, which will give them an even stronger competitive advantage. Digital cinema distribution could therefore reinforce concentration in the sector and squeeze out the more fragile independent European distributors that are dedicated to national, European and world cinema.

Even if there is a wide variety of independent distribution companies in the European market²⁵, the theatrical market is indeed heavily concentrated: on the five major markets, US distributors had a market share of 65% in 2005 and the Top 10 distributors had a market share between 82% (France) and 97% (UK/Ireland). Unlike the US market the European distribution market is moreover fragmented into national markets that are usually too small to make the distribution of domestic works profitable.

European distributors have also been very reluctant to sign any VPF deals with one of the existing third party investors. To date long-term agreements have been signed solely with US distributors of mainly US content. The main reason is that the integrators' offer does not seem to be adapted to the activities of European distributors and to the release pattern of their films, which is substantially different from the one used for more commercial fare.

For European films, in particular European non-national films, the number of prints is usually lower but their circulation rate (i.e. the number of theatres they travel to) is higher, since they are films that need time and word-of-mouth to find audiences, and which can sometimes count on an extended network of arthouse cinemas for their distribution. If a VPF is required at each entry point, the digital release of the film could become more expensive than on celluloid.

In small markets free, cheaper or second-hand prints are sometimes used by distributors, which means that the VPF can be higher than the actual saving made with the digital copy. Similarly a digital master can be a substantial cost for a distributor active in a small territory.

²⁵ According to the European Audiovisual Observatory's study "Film Distribution Companies in Europe" (2007), there were 646 active theatrical distributors in EU 25 in 2005, but on the five major markets the non-US distributors had a market share of 35% only.

This does not mean that European distributors are not ready to contribute to the digital equipment of cinemas. As acknowledged by the discussions between Europa Distribution and Europa Cinemas, European distributors are willing to co-finance digital roll-outs and to make the transition period as short as possible. Only the costs and conditions are questioned by independent distributors, also in light of the EC competition law rules.

As regards possible antitrust issues, the Commission aims to monitor the transition from analogue to digital cinema in order to ensure that the way this transition takes place complies with EC competition law rules, in particular regarding a prohibition of restrictive agreements contained in Article 81 of the EC Treaty.

PUBLIC INTERVENTION (AT NATIONAL AND EU LEVEL) FOR CINEMAS

Cinema theatres are at the core of the European film industry and value chain. In spite of growing competition from other distribution channels the cinema is still the most prestigious and powerful showcase for films. Europe has a unique network of cinemas without which cultural diversity and renewal of talents would not be possible.

As explained above, digital cinema is both an opportunity and a risk for European films/cinemas:

- an opportunity because it reduces distribution costs (and therefore obstacles to circulation) and makes flexibility and diversity of programming easier, thus enabling more European films to find audiences;
- a risk because it could lead to a dual exhibition/distribution market.

If cinemas have to close down because of the digital transition, this can clearly jeopardise cultural diversity, which the EU has committed itself to defending in accordance with the following provisions:

- Article 151(4) of the Treaty stipulates that the Community is to take cultural aspects into account in its action under other provisions of the Treaty, in particular in order to respect and to promote the diversity of its cultures;
- The audiovisual sector is important in the context of the *UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions*²⁶. This convention emphasises the specific and dual (cultural and economic) nature of cultural goods and services;
- The EU has taken GATS²⁷ exemptions for audiovisual services (MEDIA 2007 is listed as GATS exempted from the general MFN – Most favoured nation²⁸).

MEDIA 2007 Programme

²⁶ See http://ec.europa.eu/culture/portal/action/diversity/unesco_en.htm

²⁷ General Agreement on Trade in Services (GATS), see http://www.wto.org/english/tratop_e/serv_e/serv_e.htm

²⁸ Most favoured nation is a status awarded by one nation to another in international trade: the receiving nation will be granted all trade advantages (such as low tariffs) that any other nation also receives and a nation with MFN status will not be treated worse than any other nation with MFN status: http://www.wto.org/english/tratop_e/serv_e/serv_e.htm

The digital revolution is a challenge to MEDIA's global objectives of cultural diversity, increased circulation of European works and strengthened competitiveness of the audiovisual sector²⁹.

The MEDIA 2007 Programme is committed to the survival of European cinemas in the digital age. One of its main objectives is: *"to preserve and enhance the European cultural and linguistic diversity and (...), guarantee its accessibility to the public..."*.

First of all, the digital transition needs to be accompanied by training for professionals. In this context Article 3 (1)(c) of the MEDIA 2007 decision foresees training on *the inclusion upstream of digital technologies for production, post-production, distribution, marketing and archiving of European audiovisual programmes*. Training initiatives have therefore been supported on digital content distribution, new forms of distribution for the animation industry, methodologies for digital audiovisual works and production workflow in the digital era³⁰. As far as exhibitors are concerned, they can benefit from the CICA training and, more specifically, from the DigiTraining Plus organised by Media Salles.

Secondly, Article 5 of the MEDIA 2007 Decision foresees the following objectives in the field of distribution and dissemination:

"(d) to encourage the digitisation of European audiovisual works and the development of a competitive digital market place;

(e) to encourage cinemas to exploit the possibilities offered by digital distribution."

Under (d) The MEDIA programme has contributed to the digitisation of European content through pilot projects such as Europe's Finest³¹ (digitisation of 50 European classics) and D-Platform³² (common tool facilitating the digital mastering and distribution of European films). Through the VOD scheme, MEDIA also indirectly supports the digitisation of European programmes.

Under (e) The Commission has already supported a number of initiatives through the various MEDIA Programmes: pilot projects on new technologies (such as CinemaNet Europe, a network of digitally equipped cinemas dedicated to screening documentaries), co-funding of digital costs for the distribution of European films and a specific support scheme for digital screenings of European films managed by Europa Cinemas.

Furthermore the Commission established an Experts' Group on Digital Cinema at the beginning of 2008. This group is made up, inter alia, of distributors, exhibitors and representatives from the film agencies working on digitisation schemes, and explored the

²⁹ Article 1 of the MEDIA 2007 Decision sets the global objectives of the programme:

(a) preserve and enhance European cultural and linguistic diversity and its cinematographic and audiovisual heritage, guarantee its accessibility to the public and promote intercultural dialogue;

(b) increase the circulation and viewership of European audiovisual works inside and outside the European Union, including through greater cooperation between players;

(c) strengthen the competitiveness of the European audiovisual sector in the framework of an open and competitive European market favourable to employment, including by promoting links between audiovisual professionals.

³⁰ See "Where to be trained in Europe" (2009 Edition, in particular pages 68-80): http://ec.europa.eu/information_society/media/training/guide/docs/WheretobettrainedinEurope2009.pdf

³¹ <http://www.finest-film.com/en/index.html>

³² <http://www.cnfilms.fr/soutien.html>

different issues and means to maintain the diversity of films and of cinemas in tomorrow's digital Europe. The discussions have shown the need for an alternative to the existing VPF model as well as the importance of EU and national public support for the digitisation of European cinemas.

Different options for a possible European support scheme have been analysed by the Commission: These can be summed up as (i) collaboration with the European Investment Bank, (ii) the creation of an intermediary structure to handle the digitisation of European cinemas, (iii) expansion of Europa Cinemas' digital bonus, (iiii) support to associated costs such as cabin adaptation costs, maintenance costs, financing costs (*to be developed once the final scheme has been defined*).

The primary objective of any MEDIA action is to support the digital rollout for cinemas screening European non-national films. The basic criterion for awarding financial support will therefore be linked to the % of European films screened by the applicant cinemas.

The same criterion has already been used to establish the Europa Cinemas network, which the MEDIA Programme has supported for 15 years. The network has now grown to 704 cinemas totalling 1,765 screens in 404 cities of MEDIA participating countries. Support for digitisation will not be limited to the existing network, but it is clear that Europa Cinemas plays a crucial role in screening European films (35% of screenings and 32% of admissions were for European non-national films in 2008, compared to less than 10% on average within the EU) and are at the heart of the digitisation strategy of the Commission.

The digitisation scheme will take account of the following elements: national characteristics of the exhibition market, number of screens per 10000 inhabitants, number of admissions per screen and per inhabitant, European non-national film market share, ticket price. Cinemas in the new Member States (of Eastern Europe) will be given particular attention, in line with the priorities of the MEDIA Programme³³.

European support can be cumulated with national support; however, priority will go to cinemas that cannot benefit from national/regional support schemes for digitisation.

European Structural Funds

Cinemas also play an important social and cultural role in municipalities and rural areas since they are often the only social venues/access to culture for the community. Many European cinemas (in particular single screen cinemas) are owned by municipalities. Digitisation of cinemas could be supported by local authorities and regional funds.

In particular European Structural Funds could be called upon by Member States/regions to co-finance digitisation projects and training initiatives as factors of innovation as well as of cultural diversity and of regional development. In this context, funding for creative industries can be provided under several *headings*: cohesion policy, research and innovation, promotion of small and medium-sized enterprises, information society and human capital³⁴. As these

³³ In its Article 1.4.c), the MEDIA 2007 Decision sets out as one of its priorities "reducing the imbalances in the European audiovisual market between high audiovisual production capacity countries and countries or regions with low audiovisual production capacity and/or a restricted geographic and linguistic area".

³⁴ For cultural projects supported by Structural Funds, see: http://urbact.eu/fileadmin/subsites/Cultural_Activities_Cr/pdf/UC-EtudesCas-Eng.pdf

Structural Funds are managed by Member States/regions, it is for them to identify digitisation as a possible funding area in their National Strategic Reference Frameworks.³⁵

National Digitisation Plans

As access to financing is severely limited because of the current banking stall and VPF deals are not accessible to all cinemas, public support is needed to remedy the market failure and preserve cultural diversity. To make sure that all of their theatres or the most fragile ones among them can go digital, some of the MEDIA-participating countries are therefore developing their own models, which all include substantial public contributions.

The first country to launch a pilot scheme was the UK. The UK Film Council invested £ 12 m of Arts Council England money to digitally equip 240 screens in exchange for a more diversified programming of so-called "specialised films" (i.e. non-Hollywood). Digital cinema was seen as a means to bring a wider choice of films to audiences that did not have access to them. Recently the UKFC has announced its intention to implement a Rural Cinema Pilot Scheme that will bring high standard digital equipment to rural audiences giving them the opportunity to enjoy the benefits that modern digital cinemas have to offer.

Norway is now certainly the most advanced European country since the national roll-out is due to start at the end of 2009. In June of this year it was announced that Film&Kino, the organisation that groups the country's municipal cinemas and collects taxes on cinema tickets and DVDs, had signed VPF deals with 5 of the 6 Hollywood studios. Film&Kino has now prepared two public tenders: one for D-cinema equipment, installation, service, support and reporting according to the requirements of the VPF deals; and one for the total financing package - with Film&Kino as the owner of the project and with their NOK 100 million as security. The costs of the transition for all cinemas (400 in total) will be shared between distributors (40%), cinemas (20%) and Film&Kino (40%).

In France the technical issue was quickly solved since the 2k draft standard was adopted by the *ad hoc* working group of AFNOR (NF S 27-100) as early as September 2005. The Centre National de la Cinématographie (CNC) then commissioned a study³⁶ and set up working groups on technical and economical aspects of digital cinema. With the highest number of screens (5398 in 2007) and of active distributors (over 100) in Europe, France has to face a wide range of diverse situations that all need consideration. Driven by the CIN (Collectif des Indépendants pour le Numérique), the CNC has just proposed a mutualised fund open to all exhibitors based on the following principles:

- distributors would contribute to the fund with a VPF between 550 and 650 €
- a fixed monthly contribution would cover 75% of the exhibitor's investment over 7 to 9 years, with a maximum of 74.000 € per screen (all costs except 3D and maintenance) and of 10.000 € per cinema (for the library);
- to facilitate access to credit, IFCIC³⁷ can guarantee up to 50% of the exhibitor's loan;

³⁵ The detailed management of programmes which receive support from the Structural Funds is the responsibility of the Member States. For every programme, they designate a managing authority (at national, regional or another level) which will inform potential beneficiaries, select the projects and generally monitor implementation. To find the responsible authority see: http://ec.europa.eu/regional_policy/manage/authority/authority_en.cfm

³⁶ Adieu à la pellicule? Les enjeux de la projection numérique, Daniel Goudineau, August 2006.

³⁷ Institut pour le Financement du Cinéma et des Industries Culturelles: IFCIC, a specialised lending institution, was charged by both the Ministry of Culture and Communication and the Ministry of Finance with contributing to the development of the culture industry in France by making it easier for sector companies to obtain bank financing.

- other public support (local, regional, selective scheme from the CNC) will be deducted from the eligible amount for the fund – up to a certain level to be determined.

Germany's initial (100) plan was to equip 3700 screens (out of the existing 4700) in 5 years by sharing the costs the following way: €100m would come from distributors (VPF), €100m from public bodies (FFA³⁸ and the State) and exhibitors would pay €100 per month. Due to a legal strife with exhibitors, the so-called "100 Plan" was put on hold but the FFA agreed in June 2009 to provide €40m in start-up financing to help the digitisation of cinemas on the condition that exhibitors drop their legal battle.

In Eastern Europe two countries have national digitisation strategies: driven by KIPA (Association of Polish producers), Poland intends to fully finance the digital equipment of 300-350 local (mainly one-screen) cinemas so that Polish and European films can still be shown in the digital era; in the Czech Republic, the Film Fund will support the digitisation of 25 screens per year (up to 50% of the costs).

State aid

The above mentioned public support schemes by Member States are subject to State aid control.

The point of departure of EU State aid policy is laid down in Article 87(1) of the EC Treaty: it provides that any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods is, in so far as it affects trade between Member States, incompatible with the common market³⁹.

The Commission has taken the view that small amounts of aid (*de minimis* aid) do not have a potential effect on competition and trade between Member States, so that the measure no longer needs to be notified to the Commission in advance.

To benefit from the *de minimis* rule⁴⁰, aid has to satisfy the following criteria:

- The ceiling for the aid covered by the *de minimis* rule is in general €200,000 (cash grant equivalent) over any rolling three fiscal year period to any single recipient undertaking. The relevant period of three years has a mobile character, so that for each new grant of *de minimis*, the total amount of *de minimis* aid granted during three consecutive fiscal years (including the then current fiscal year) needs to be determined.
- The ceiling applies to the total of all public assistance to any single recipient undertaking, which is considered to be *de minimis* aid. It will not affect the possibility of the recipient obtaining other State aid under schemes approved by the Commission.
- The ceiling applies to aid of all kinds, irrespective of the form it takes or the objective pursued. The only type of aid which is excluded from the benefit of the *de minimis* rule is export aid.
- The regulation only applies to “transparent“ forms of aid which means aid for which it is possible to determine the gross grant equivalent in advance without needing to

³⁸ Filmförderungsanstalt = German Federal Film Board

³⁹ Only measures involving a direct or indirect transfer of state resources and measures having a potential effect on competition and trade between Member States are considered to constitute State aid.

⁴⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1998:EN:NOT>

undertake a risk assessment. This implies a certain number of restrictions on certain forms of aid like, for example, guarantees.

- In view of the current economic situation, the Commission will, for a temporary period⁴¹, consider State aid of up to € 500,000 per undertaking to be compatible, provided that certain conditions are fulfilled⁴². The possibility of a loan guarantee of up to €1.5 million can also be regarded as *de minimis*.

Aid measures that satisfy all the criteria outlined in Article 87(1) of the Treaty and do not fall under *de minimis* are in principle incompatible with the common market. However the Treaty specifies a number of cases in which State aid could be considered acceptable (the so called “exemptions”).

According to Articles 38 and 39 of the General Block Exemption Regulation⁴³, general training measures can be supported up to an aid intensity of 80%⁴⁴. Such training aid, not exceeding €2 million per training project is exempted from individual notification.

As far as the digitisation of cinemas is concerned, the most relevant exemption clauses are those in Article 87(3)(c) and 87(3)(d) of the Treaty, which have already been applied in the following two cases:

- Article 87(3)(d) refers to “aid to promote culture and heritage conservation, where such aid does not affect competition and trading conditions to an extent contrary to the common interest”. In the case of the UK Digital Screen Network⁴⁵, aid under this exemption was approved for cinemas showing a high proportion of specialised artistic/cultural films using the digital projection equipment being (fully) financed;
- Article 87(3)(c) refers to “aid to facilitate the development of certain economic activities or certain economic areas, where such aid does not adversely affect trading conditions contrary to the common interest”. The Commission has approved the *support to cinemas* under the *aid scheme to cinema in Finland*⁴⁶ on this basis. The support was intended as partial funding for the procurement of equipment and modernisation in (arthouse and 1-3 screen) cinemas operating primarily in small or medium-sized localities. Multiplexes and cinemas which were part of a larger chain in the capital area were excluded from the aid (*idem* in medium-sized municipalities, except in limited economic circumstances).

⁴¹ During the period from 1st January 2008 to 31st December 2010

⁴² Communication from the Commission - Temporary framework for State aid measures to support access to finance in the current financial and economic crisis, (consolidated version of the Temporary Framework adopted on 17 December 2008, as amended on 25 February 2009), OJ C 83 of 07.04.2009, p. 1 [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009XC0407\(01\):EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009XC0407(01):EN:NOT)

⁴³ Commission Regulation (EC) No 800/2008 of 6 August 2008 declaring certain categories of aid compatible with the common market in application of Articles 87 and 88 of the Treaty (General block exemption Regulation), OJ L 214, 9.8.2008, p. 3–47

⁴⁴ General Training - means training involving tuition which is not applicable only or principally to the employee’s present or future positioning the undertaking, but provides qualifications that are largely transferable to other undertakings or fields of work. On the other hand Specific Training - means training involving tuition directly and principally applicable to the employee’s present or future position in the undertaking, but which provides qualifications which are not, or only to a limited extent, transferable to other undertakings or fields of work.

⁴⁵ State aid N 477/04 – United Kingdom, UK Film Council Distribution and Exhibition Initiatives - Digital Screen Network.

⁴⁶ State aid NN 70/2006 - Aid scheme to cinema in Finland

The European Commission has recently opened an in-depth investigation into the Italian tax-credit scheme for the digital equipment of cinemas. As it is the first scheme that may mainly benefit multiplexes, there is no obvious precedent the Commission could follow to assess it. On a wider level, the issue of public support for digital projection is quite a complex topic potentially requiring major public intervention on which there has so far been no public consultation at EU level. The Commission has therefore opened the issue for public debate⁴⁷.

CONCLUSIONS

There is a clear need to:

- support the digitisation of audiovisual production for all types of digital distribution channels, in particular for cinema projection;
- ensure the inter-operability of digital projection systems and of databases of equipment certificates/trusted device lists;
- make the digital transition as short as possible to avoid double costs (celluloid and digital) and a dual distribution/exhibition system;
- make sure that cinemas contributing to European cultural diversity (i.e. screening a large share of European films) can also access digital equipment;
- preserve/enhance the diversity of European programming in the digitised cinemas;
- identify the digital equipment of cinemas as a priority area for investment of the European Structural Funds.

To maintain the diversity of distributors and of cinemas that is essential for the circulation of European works, the European Commission will design a financial support scheme contributing to the digitisation of cinemas screening a substantial share of European films.

As far as State aid is concerned, the European Commission is aware that some types of cinemas are threatened with closure because of the costs of the digital transition and therefore acknowledges the right for Member States to provide support for the digitisation of their cinemas within the existing State aid rules.

⁴⁷ The public consultation launched by DG Competition is open until 31st October 2009 at the following address: http://ec.europa.eu/competition/consultations/2009_digital_cinema/index.html

DIGITAL CINEMA GLOSSARY⁴⁸

2K

Resolution of 2048 pixels per line

4K

Resolution of 4096 pixels per line

Alternative Content

Content available through a digital cinema system that would typically occur on a “one-off” basis or “off-peak hours” run basis. Sometimes referred as “non-traditional content”.

D-Cinema

A contraction of digital cinema. In the classic model the entire production chain from scene to screen is a digital process, with images first captured and processed digitally before then being compressed, encrypted and transmitted via satellite, broadband or disc to cinema theater for digital projection.

DCDM - Digital Cinema Distribution Master

A master set of files that have not been compressed, encrypted, or packaged for Digital Cinema distribution. The DCDM contains all of the elements required to provide a Digital Cinema presentation.

DCP - Digital Cinema Package.

The set of files that are the result of the encoding, encryption and packaging process.

Definition

A description of sharpness or clarity of a picture. High definition (HD) pictures portray a lot of detail, while low definition pictures look soft and less clear.

Digital image

An image defined by code values.

Digital Cinema Projector

A Digital Cinema Projector is one that conforms to the DCI specifications. The available options in the marketplace today are those equipped with Texas Instrument’s DLP Cinema® chip or Sony’s SXR® technology.

DSM – Digital Source Master

The Digital Source Master is created in Post-Production and can be used to convert into a DCDM (Digital Cinema Distribution Master). The DSM can also be used to convert to a film duplication master, a home video master, and/or a master for archival purposes.

DLP

Texas Instrument’s Digital Light Processing digital projectors, which use arrays of tiny mirrors mounted on DMDs (Digital Micromirror Devices) to project the image. Currently over one million DLP-Based systems have been sold worldwide (though very few of this number to date have been cinema projectors).

DVD

Digital Versatile (Video) Disc

⁴⁸ Sources: Europa Cinemas and EDCF (European Digital Cinema Forum)

HDTV

High Definition Television

Interface

A means of passing on information from one application to another. Interfaces can either be proprietary, in which case only one or a chosen few applications can use it, or open with the interface details publicly available and, best of all, complying with the appropriate international standards.

Interoperability

The ability of systems to interoperate – to understand and work with information passed from one to another. Applied to television this means video, audio and metadata from one system can be used directly by another. Digital signals may be originated in various formats and subjected to different types of compression so care is needed to maintain interoperability.

JPEG 2000

A wavelet-based image compression standard. It was created by the Joint Photographic Expert Group (JPEG) committee with the intention of superseding their original discrete cosine transform-based JPEG standard. It is the compression method specified by DCI for digital cinema picture tracks.

KDM – Key Delivery Message

The KDM provides the method for securely delivering content and key elements. A KDM contains the ‘keys’ to unlock the elements of a CPL for a specific device. If a DCP contains multiple CPLs, a unique KDM is required for each different CPL, and can only be generated for devices on the Trusted Device List (TDL).

Library Management Server® (LMS)

A group of servers and networking components that are integrated and tested to create a powerful central hub for all communication needs in the multiplex. It allows central storage of all films, alternative content, trailers, advertising and more. This component networks the theatre, increasing the value of the individual components on each screen.

Mastering

Mastering indicates the set of those technical activities that lead to the finished edited master of a program, which normally materializes the creative intent of its authors.

Media Server

Each digital cinema projector requires a media player to decompress and decrypt Digital Cinema Packages (DCP), allowing the content to be played on the associated projector. There is one media server for every projector in a multiplex.

TDL – Trusted Device List

The TDL is list comprised of digital equipment installed in theatres for which studios or other rights owners have given their approval to these ‘trusted’ devices to play their content. KDMs are only created for devices on the list. This adds another level of security to the DC process.

Transport and Delivery

Digital Cinema Packages (DCPs) and Key Delivery Messages (KDMs) are transported either physically on media (such as hard drives) or electronically or via satellite. When the DCP arrives at the theatre and is loaded, it is unpackaged, decrypted and decompressed for play out by the projection equipment.