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Digital cinema – the role of technological innovation in generating public good in the field of culture

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Abstract: Digital cinema, which is unquestionably a technological innovation, has become a post-modern art house, a multifunctional cultural institution, which due to its new enlarged functions greatly contributes to generating a public good. As a non-conventional provider it explores the abilities of cinema's alternative content to promote various manifestations of culture – from high culture events such as classical music concerts, operas and ballets to popular forms of entertainment as well as diverse educational activities. In this way a digital cinema both facilitates and encourages cultural participation, especially in the areas where numerous barriers exist. Thus its value consists in actively contributing to enlarge a social availability of the public good and its more equal and just distribution. Consequently, it also enhances social cohesion by acting against social exclusion, multi-dimensional marginalization and digital apartheid, especially in economically disadvantaged societies. It successfully changes the concept of a cultural centre and periphery allowing the latter to reduce its civilisational gap. In this way it also provides its inhabitants with more equal chances to participate in the global society and benefit from the best it can offer. Considering its socio-economic and cultural impact, a digital cinema can be seen as one of the most important factors generating human capital, which in turn strongly influences the quality of life of individuals and of whole nations as well as their well being and economic competitiveness.

The objective of the present article is to examine the multi-dimensional potential of D-cinemas in generating public good. This issue is of importance in Poland as the digitalization process of non-commercial cinemas has already started and one of its challenges is to use this to the best of its potential.

Introduction

Healthcare, education, public safety and culture belong to basic areas where the state through its numerous agencies and organizations assisted by various QUANGOs and NGOs acts as a provider of public goods [Deacon, 2005 Economides, Philippopoulos, Vassilatos, 2011; Gillette, 1994]. The importance of a successfully performing its role especially increases in economically disadvantaged societies whose members, in a great number, suffer from an economic divide strongly affecting their ability to profit from what post-modern

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societies can offer them, especially in the field of the most advanced technologies. This in turn, results in a multidimensional exclusion (no access to electronically processed information and the ability to produce and manage it) which heavily impacts upon their capacity to generate the intangibles, the symbolic capital [Bourdieu, 1998; Swartz, 1998]. As the latter is the most important asset of each post-modern society and a self-renewable, never-exhausted source of the wealth of each nation, it consequently determines to a great extent the quality of life of the whole nation and of its individual citizens. It also accounts for their personal well-being and even their concept of self-worth, self-respect and empowerment, which in turn has got a global resonance.

Culture has always been treated as a basic public good, a source of the symbolical capital [Bourdieu, 1979; Bourdieu, Passeron, 1990; Farkas, 1996; Morgan et. al., 2006] and a new conceptual framework for the definition of the other. Thus due to its ability to change mental attitudes, social consciousness and behaviours culture it has become an efficient tool to reduce or even prevent socio-economic barriers. In the process, strong cultural identities have been created which constitute solid bases for an international peaceful co-operation. Furthermore, a positive role of culture can be seen in its acting as a factor against social divide and marginalisation by empowering people, stimulating them to work for the local community, inspiring social changes, increasing social cohesion and solidarity as well as the awareness of the sense of citizenship and local patriotism. It plays a vital role in individual development and social progress integrating people around shared values, giving meaning, order and an ethical dimension to their life by providing them with a sense of safety and togetherness. Culture encourages self-governance, which allows people to achieve their common goals. Hence culture fully deserves its symbolical nick-name of soft power [Nye, 2004] which, unlike hard power – military and economy – can be used to engage societies into an intercultural dialogue.

The above are the reasons which explain why today the biggest challenge for each government as still the main provider of public goods is both to offer to its citizens a free and easy access to culture and its numerous manifestations, and to encourage their active participation in various cultural events. However, neither of the above objectives can be successfully met unless potential culture users possess a proper cultural education and develop special cultural competencies [Sharp, Le Métais, 2000; Moule, 2012]. As the latter means thinking and acting within larger categories of public interests, culture belongs to factors which create real chances for sustainable development of societies and the whole world.

The digital cinema is a technological innovation in the field of culture with a status of both a public good itself and of its provider. It fits the basic definition of the former which uses the Schumpeter tradition and includes in the categories of new improved goods, productive processes, services, and new forms of organization that have been adopted by the market. However, digital cinema also encroaches on its updated version because, as rightly observed by Koch and Hauknes [2005], today the traditional definition needs to be extended to embrace also a great deal of innovations introduced in the public sector where they take the form of new or improved public goods [Corona et al., 2011]. All of the technological innovations play a significant role in driving economy and are also key products facilitating and strengthening innovative non-strictly economic activities inspiring new ideas and constructing more open, creative attitudes. Consequently they contribute to understanding the economic progress in terms of human capital.

The above theoretical discussion can hopefully contribute to a better understanding of the opportunities a digital cinema has to offer global, but especially local communities whose role is primarily building a prosperous civic society. This issue is of special importance in Poland where the digitalization process has merely started. The Małopolska region can be named its pioneer as far as non-commercial local cinemas are concerned. Their digitalization is realized within the project “Małopolska Sieć Kin Cyfrowych” (“The Małopolska Network of Digital Cinemas”) which is a flagship project of the Fundacja Rozwoju Kina (“The Foun-

dation of the Cinema Development”), a non-governmental organization based in Krakow. Founded in 2006, it has already changed the cultural landscape of small cities and even of Krakow offering new cultural and educational opportunities to the cinema audiences. Since the very beginning it has been a success and despite lots of challenges it has had to face its first positive effects can already be seen. Its innovative impact is twofold: firstly its offer focuses on culture and education transmitted by a new medium, secondly, it inspires changes in management practices, social attitudes, intellectual capital etc. of all stakeholders of the digital cinema, which is a tangible form of a technological innovation operating within the public sector.

“The Małopolska Network of Digital Cinemas” deals with digitalizing the cinemas in the region which meet three basic criteria. Firstly they are non-commercial local cinemas which belong to local authorities (*gminas*) and are financed from their budgets, usually too small to make them fulfill their cultural mission. Secondly, they are located in small and average size cities whose population does not exceed 100,000 inhabitants and which are in the proximity of big cultural centres. In Małopolska these are Kraków, Tarnów and Nowy Sącz where there are digital cinemas both commercial and non-commercial digital cinemas. This feature is of great importance because it results in a one-way – from the small town to the big centre – cultural migrations during weekends. Thirdly, as a part of the local houses of culture inherited from the previous political regime, local *gmina* cinemas are often the main and unique institutions which provide local people with some kind of culture, stimulate their cultural education and create, although rather poor, opportunities for their cultural participation.

“The Małopolska Network of Digital Cinemas” disposes of the budget of 6 mln zlotys which allows it to support the transformation process of local non-commercial cinemas and starts deeper socio-cultural and even economic changes in small cities and villages. Apart from its rather substantial budget, its even more important asset is its workers – professional, young and full of entrepreneurial spirit, ready to meet the challenges which are an inherent part of the digitalization of non-commercial local cinemas. Their consistent efforts aimed at changing local cinemas into D-cinemas contribute to realizing the vision of Poland presented in the Report *Poland 2030 – Developmental Changes* [2009] where digital apartheid does not exist and thanks to much higher cultural competencies symbolical capital is significantly higher than today.

The role of the digital cinema in developing cultural competencies was clearly articulated during the international “Experts Conference of the Polish Presidency in the area of Culture, Audiovisual and Copyright” organized by the Ministry of Culture and National Heritage in July 2011. Its second section “The creative potential of digital archives” dealt with its various aspects and their role in encouraging cultural competencies and cultural literacy. These, in turn, are absolutely necessary in a contemporary world which generates creative minds, open to changes and to prepare them for membership in the knowledge society.

Considering the above introductory remarks, the aim of the present article is to investigate the role of a technological innovation, a digital cinema in our case, in acting as a public good as well as its provider which serves to contribute to empower the less privileged members of the post-modern society who in turn become a valuable source of the symbolical capital. The focus is thus on the cultural potential of the D-cinema and its socio-cultural impact while purely economic issues are peripheral in the discussion. The topic deserves much attention and should be more carefully examined considering the fact that the socio-cultural role of digital cinemas and its subsequent economic impact will grow every year. Hopefully, the present contribution will inspire more research in the field filling the gap in this area.

A digital cinema as a technological innovation

Following its definition, a digital cinema (DC) uses a digital technology instead of a traditional analogue one to both distribute and project motion pictures. Hard drives, optical discs (such as DVD and Blu-rays) or a satellite serve to store and distribute them. Although a digital cinema has evolved from a high-definition television it is clearly distinct from it, especially, as it does not depend on using television or HDTV standards, aspects ratios and frame rates. The pace of its development and world expansion has significantly accelerated since 2006 after the digital projectors capable of 2K resolution (2,048 pixels of horizontal resolution) were deployed for the first time in 2005.

A digital cinema is a pretty young cultural institution but numbers and statistical data indicate its rapid and very dynamic expansion all over the world. It has become an industry on its own generating economic wealth [Taub, 2009] and, what is even more important, successfully performing a role of a new and efficient cultural agent and an active provider of social well-being. On March 11, 1998 there was the first digital cinema demonstration in London, which consisted of several clips from popular films. The first feature film to be realized digitally was *The last broadcast*. It was shown in the theatres across the USA in October 1998 and a year later during the Cannes Film Festival in Europe [Taub, 2009].

The first D-cinema was created in 2000 in Hiroshima in Japan while in Europe, it is Great Britain with its Film Council's Digital Screen Network (DSN) which is the leader in the process. The rapid pace of the changes in Great Britain is best illustrated by the following data: by March 2007, 230 of the total 241 screens were changed into D-cinemas and the remaining eleven were to become digital later in that year. Great Britain is also the home to the two first DCI-compliant fully digital multiplex cinemas. They are the Odeon Hatfield and the Odeon Surrey, both located near London and launched on February 9, 2007. Together they have 18 digital screens, which shows their great economic and cultural potential.

The success of D-cinema is also conspicuous in Asia. In China where it is known as "dMs" it was used in over 15,000 screens spread across 30 Chinese provinces in June 2005. Only four years later, in 2009 there were already 40,000 D-cinemas and their number keeps growing [*China Digital...*], which clearly indicates its dynamic development. In August 2006 the first Indian digital movie *Moonnamathoral* was distributed via satellite to D-cinemas all over the world thus successfully promoting Indian national production and Bollywood actors ["Digital movie in Malayalam released", 2006]. Other numbers are even more impressive. India possesses the world's largest, multi-million satellite based MPEG4 digital cinema encompassing 2000 theatres for UFO (United Film Organizers), a subsidiary of the Valuable Media Group. Its dynamic development is also shown by other statistics: the number of shows using the DG2L Cinema System platform has grown from 30,000 in March 2006 to 100,000 in August 2006 [*Bollywood...*, 2007].

The first commercial European D-cinema VPF agreement was signed through the initiative of the Arts Alliance Media in June 2007. The same year marks an important *ceasura* in the history of the D-cinema in the USA as it is also when Muvico Theaters Rosemont 18 in Rosemont Illinois was transformed into the first digital theater in North America. It was equipped with Sony 4K digital projectors for all 18 screens.

Today the total number of digital cinemas in Europe is 10,083, which constitutes 28.2 per cent of the global figure [*Eurocinema Expo*, 2011, p. 2–3, 34]. In June of 2010 the total number of D-screens worldwide came to 36,242 in comparison with 16,339 at the end of 2009, which indicates a surprisingly high annual growth rate of 121.8%. North America has 16,522 D-screens (46.2 per cent of global figure) and Asia 7,703 (21.6 per cent of global figure). Although in 2011 there is expected to be a slight drop, D-cinema is both a technological and an economic fact with strong cultural implications [Hancock, 2010].

The year 2007 is significant for Poland, because it is when the first digital cinema "Nove Kino Praha" was launched in Warsaw. It was a commercial cinema. Today there are about

200 digital cinemas in Poland, both commercial and non-commercial, the latter of which are financed by local authorities from their own budgets. In the Małopolska region there are twelve local cinemas digitalized within the project *the Małopolska Sieć Kin Cyfrowych (the Małopolska Network of Digital Cinemas)* realized by the “The Foundation for the Cinema Development” and seven other commercial digital cinemas which have self-digitalised.

A distinctive feature of a digital cinema is its high-quality image and sound as well as special effects which cannot be matched by traditional analogue technology. The high quality is secured by the Digital System Specification which was conceived in 2002 by the Digital Cinema Initiatives (DCI), a joint venture of the six major film studios. Much of its content refers to the ideas of the Society of Motion Picture and Television Engineers (SMPTE) such as: a film encoding, a content encrypted with secure delivery, playback and reporting of play times to the distribution company [*DCI Cinema Specification*, 2008]. Its importance lies in its establishing a content owner framework for the distribution and in securing the first-release motion picture content.

The cinemas which meet the DCI standards are recognized as D-Cinemas while all other digital cinemas constitute the group of E-Cinemas. Both D- and E-cinemas are supposed to conform to the Digital Cinema System Requirements [*NATO Digital Cinema Requirements*, 2008] formulated by the National Association of the Theatre Owners (NATO). Apart from contributing to the SMPTE standards efforts the requirements also complete the DCI in such areas as: access for the visually impaired and hearing impaired, workflow inside the cinema, equipment interoperability, requirements for the Theatre Management System (TMS), governing software for digital cinema systems within a theatre complex, development of security key management systems.

E-cinema is an alternative for smaller film theatres – studio cinemas as it is cheaper (lower costs of the projector and maintenance) and shows smaller pictures suitable for smaller screens as well as for the projection of commercials, alternative content, fringe and low-budget films. The latter normally do not have a theatrical release because of the cost of duplication. It is extremely high using traditional technology but gets cut down with a digital print, which means that adding more theaters to a release has a small additional cost to the distributor. Despite existing technological differences between D- and E-cinema impinging on their programme offer, both of them provide high quality standards of projections. In the case of E-cinemas, the picture is only slightly different from D-cinemas, but the difference is hardly noticeable to the average viewer.

This short overview of these distinctive features of the D-cinema which account for its classification as a technological innovation as well as a brief history of its development all over the world bring in at least two basic questions of both socio-cultural and also economic dimensions. Firstly, it is about the relation between the costs of the innovation and the profits of a company – in our case a cultural institution and more precisely its owner and manager – *gmina* – can capture, as well as the capital it can generate in the form of public goods and social welfare [Weinert, 2002, p. 299, 301]. If the costs are prohibitive as they are at the moment for small local cinemas, the innovation fails in terms of its economic value. However, does it mean that it also fails in terms of its non-economic, cultural value, which is its *raison d'être*, especially considering the role of culture in generating the intangibles? Secondly, it is about the potential of the new innovation product and how it can be used best. Most innovations which get to the market are not immediately used to their full potential because they need an application of new know-how, of new managerial skills of a very high order of sophistication and imagination. Thus a technological innovation needs new minds free from all kinds of intellectual and psychological barriers in order to exploit the vastly expanded capabilities included in it. It is important to understand that the impact of a technological innovation will generally depend not only on its inventors, but also on the creativity of the eventual

users of the new technology. This approach, in turn, implies redesigning the work process, which is a very complex problem in its own right.

The above questions, uncertainties and worries can be better understood and answered within the theory of the diffusion of innovations [Rogers, 1962] whose aim is to explain how, why and at what rate new ideas and technology spreads through culture. In Poland the diffusion of the digital cinema as a technological innovation has merely passed its two first stages – innovation and communication channels but its third (time) and fourth (social system) elements are still being processed [Rogers, 1983, p. 11, 17, 21]. Additionally, referring to Roger's types of innovation decisions within the diffusion process, the decision to digitalise local cinema was to some extent imposed on local authorities (see authority innovation decision in Rogers [1983, p. 403] and even more on the cinema staff whose members often were neither properly trained nor interested in changing their routine job. Thus neither of the five stages of an individual decision making process – knowledge, persuasion, decision, implementation and confirmation nor its corresponding but slightly changed stages within the organizational decision making process – agenda-setting, matching, redefining/restructuring, clarifying, routinizing have been successfully completed. This explains why the digital cinema is not used to its full potential yet and its economic costs are still bigger than their direct socio-cultural and indirect economic gains.

The above diagnosis should not hinder the process as digital cinema is a great chance to reduce the so-far existing divide into a cultural centre and a periphery with its subsequent socio-economic implications and often stigmatizing self- and mutual perceptions of their respective inhabitants. Let me stress that the importance of creating a sense of connectedness to the metropolis accounts in constructing a new state of self-awareness, more progressive, open, self-confident, adventurous, global and positively mundane which can more easily deal with challenges and threats of the post-modern competitive reality.

The cultural potential of an art house as a chance for the revival of *gmina* cinemas

In comparison to a traditional cinema, its digital counterpart has become an art house, a multifunctional cultural institutions which apart from performing all the functions of an analogue cinema, consists mainly of showing films and sometimes also being used as a conference and meeting hall, can furthermore become a modern artistic, educational, entertainment, business and conference centre [Perisi, 1995, p. 142–145, 202–210; Culkin, Randle, 2004; Neale, 1985; Karagosian, 2006]. Considering the fact that today digitalization works as a *sine qua non* condition of progress, a digital cinema acts efficiently against digital apartheid by allowing its audiences to participate in a global cultural and information network independently from their place of living.

The actual use of the functional potential of a D-cinema depends on its manager and the audience who together decide about it considering their own needs and interests. The flexibility of D-cinema due to its *alternative content* which consists in its ability to meet needs and expectations of various audiences is one of its strong points. It is also a way to make up for the gap between a city and a small town or a village where in practice the principle of social coherence is difficult to realize. Needless to say, the cultural potential of the D-cinema is the only chance for the local non-commercial cinemas functioning on the level of *gminas* to fulfill satisfactorily their cultural mission.

The first cinema function – projecting films – is a *sine qua non* condition of its existence but D-technology allows for an up-dating and variation of the cinematic experience to an unprecedented extent, unknown to the traditional, analogue cinemas. It is possible due to the use of new technologies to record and store a film on a disc which can be quickly, cheaply and easily available through an electronic distribution system by D-cinemas in both big centres and small peripheral localities at the same time. Surprisingly, a simultaneous show of a film by means of the D-technology in all D-cinemas, in both central and peripheral cine-

mas, does not increase its costs. On the contrary, an especially impressive reduction can be witnessed by the price of any extra film copy sent to a digital cinema. The evidence in terms of numbers shows it very clearly, as the cost of a traditionally made copy of an 80 minute long film for a conventional analogue cinema is between 1500 and 2500 USD while it is only between 200 and 400 Euros when it is made with digital technology.

Consequently, it is mainly the price of film copies as well as the new, extremely efficient distribution system which enables local *gmina* cinemas to show the same films as multiplexes in big cities. They can also show films which have started with a small release, e.g. young artists' productions or art cinema, previously seen only in big cultural centres, as the digital printing process allows us to make new copies quickly and rather cheaply. One more advantage consists in the possibility to show the same film on as many cinema screens as necessary by simply connecting to the digital signal without any extra costs. Thus, the technological parameters of the D-cinema allows us to adjust its offer to the actual demand of its audience, independently from their number, within literally a few minutes.

The second function of the D-cinema is possible to fulfill because of the *alternative content* it can provide. The term *an alternative content* refers to all kinds of activities other than showing feature films such as live special events in the field of culture, education and sport whose transmissions are possible only via satellites. They include a projection of operas, ballets, sports events, pre-show advertising and other digital or video content. Consequently, a local cinema can become, as if by pure magic, a stage of *La Fenice* from Venice, the New York *Metropolitan Opera*, the Parisian *Palais Garnier* or the *Bolshoi Theatre* from Moscow where, among others, such great operas as *La Traviata*, *Carmen*, the ballet *the Swan Lake* are shown. Live transmissions of the best spectacles of the British theatre offer a unique experience to theatre goers who wish to see the masterpieces of world literature performed by the best actors.

An *alternative content* creates new, previously non-existing, opportunities of participation in culture, especially in high culture such as opera, ballet, theatre and concerts, which is of particular importance for non-city dwellers. In big cities, their availability has always been taken for granted while for the non-city dwellers an evening in an opera, for example, means a lot of effort, an extra journey, extra costs, extra time, extra energy, etc. The list of obstacles can be very long as they are mutually dependent and generate new barriers. A lack of opportunity to go to the theatre, for example, impacts upon cultural literacy which is hard to create or grow if the habit of participating actively in cultural events has not been developed and consequently the need to do their part is not felt. Introducing high culture live events into small villages marks a positive change in the richness of cultural life on the periphery, which by helping bridge the big/small city cultural gap promotes social cohesion.

Educational activities embrace live transmissions of national and international conferences, lectures of world experts, participation in debates as well as chosen courses offered by different universities in Poland and abroad. In this way students get exposed to different teaching methods and teaching styles, experience various approaches to the same problems, gain not only professional knowledge but also polish their language and interpersonal communication skills. The ability to participate in global learning is both challenging and rewarding and prepares us to work across borders.

The concept of an educational cinema can be successfully applied to transform D-cinemas into business conference centres from where to conduct business meetings, conferences and negotiation sessions with partners all over the world. As interconnectedness and simultaneous communication with more than one partner are basic for contemporary business which has become intercultural and international, this function of a D-cinema creatively adapted to business demands is a great chance for small villages. It is a way to make them emerge from the margins and use their potential for their multidimensional growth.

Finally, the potential of a D-cinema can be successfully explored to offer sport events, live transmission for sport lovers and interactive entertainment with special effects for those who want to have a good time with their friends. Although this function has not been used in Poland yet, it is gaining popularity abroad, e.g. in Spain where it constitutes a favourite pastime for youngsters who have at their disposal all kinds of special effects when they play computer games together.

A new art house can truly fulfill its cultural mission and act as a community cultural catalyst, which is especially important for *gmina* cinemas which may often be the only local institution of culture. Thus their cultural mission is their *raison d'être* as well as the basic rationale explaining their existence. However, usually their low budget does not allow them to fulfill it in a proper way. It is a well known truth that most of them keep losing their audience and are dying a slow death. The reason is that their technology allows them to function merely as traditional cinemas whose attractiveness depends on the *premieres*. These, in turn cannot be shown just after they have been released due to the distribution system and the costs of the *premiere* copy made within the analogue system. The best film productions, holders of prestigious awards of such film festivals as Cannes, Berlin, Venice, Hollywood, etc., are first shown in the cinemas in big cities, preferably D-cinemas, and only after a few weeks, often months their copies are made available to small *gmina* cinemas.

The situation is reminiscent of a vicious circle: local cinemas cannot afford buying a copy earlier and when they finally do it, they show it in an almost empty cinema as most people have already seen the film in a digital cinema in the city. Consequently, as they themselves cannot make money and be subsidized from local budgets, either, they can hardly ever invest it in their own development and start the process of self-digitalisation. In practice it means that without substantial help from the programmes realized within the EU digital policy they would never become D-cinemas and they will fail their cultural mission. On average, the initial costs of converting a traditional cinema into a D-cinema are up to 150,000 USD or even more per screen. The prize covers the whole digital cinema playback system which includes a server, a media block and a projector. It is thus 3-4 times more than a traditional projector which costs about 50,000 USD. Moreover, the digital cinema playback system is at a much higher risk for component failures and technological obsolescence and its average economic lifetime is only five years [*The Digital Dilemma...*,2007].

Economic problems of small *gmina* cinemas which are part of the old type *house of culture* are often strongly connected to the management style. It should be stressed that most of the institutions are still run by self-made managers of culture, “inherited” from the previous epoch. These people tend to think in terms of centralized economy and cultural policy which did not leave them much space for their autonomy and initiative. Used to work that follows a certain mental schemata where there was very little or even no space for inventiveness and alternative, creative thinking, they did not manage to develop an entrepreneurial spirit which today has become an absolutely necessary skill of a manager of culture. To meet these challenges, one must be both a visionary and a highly skilled professional with economic and legal knowledge, but above all have an open and flexible mind as well as a sensitive identity.

Proper management of an art house directly impacts upon its cultural mission but it also indirectly influences the economic status of the local community which has already become less economically privileged in the transformation process. Its situation has been even worsened today due to the quick pace of technological changes with which they can hardly catch up. Consequently, many villages tend to become a kind of *ghost places* or dormitories marked by economic migration, especially by young people looking for new educational and job opportunities both abroad and in big cities. The potential of a digital cinema, both as a direct and indirect economic stimulator can be successfully explored to improve many aspects of communal and individual life, even if the opportunities it creates do not belong to mega changes.

As for its direct economic impact, a D-cinema creates new jobs and stimulates, although to a small extent, the local labour market. Secondly, it influences a positive change of the image of the area by enriching its cultural offer by events so far only available in big cultural centers all over the world. In this way, it contributes to the cultural attractiveness of a small town which is strongly related to its quality of life as well as its economic competitiveness. An increase of the former tends to entail an increase of the latter as, roughly speaking, the cultural potential of a place usually encourages new investments, often of an international capital, which brings about the gentrification of the area. Finally, it prevents the leisure money of local people from being spent elsewhere than in the place of their residence. The local cinema can provide them with the same entertainment as the cinema in the city without the need to invest extra time and money. Finally, by connecting local people to the global community it makes them develop their symbolical capital, which also has a very tangible economic value. Thus a digital cinema exemplifies the truth, yet not so well-known in Poland, that culture *makes money*, in this case the money which will flow into the *gmina* budget to be then spent for the benefit of all of its inhabitants.

The alternative content as exemplified by non-commercial D-cinemas in Kraków

Although it seems to be less obvious, the *alternative content* also enriches cultural opportunities in big cities by offering participation in particularly high cultural events at low costs. It often happens that the audience of special events belong to the economically privileged groups who can afford an outing but whose members may treat culture as an instrumental value, useful in managing their identity and a positive public image. A large group, particularly of elderly people with strong cultural needs but who cannot afford an outing to the opera or theatre, are excluded, which, once more, brings in the question about the understanding of culture as a kind of public good whose main provider should be the state today strongly supported by third sector institutions.

In the region of Małopolska, this role is performed by the foundation of “Małopolska Network of Digital Cinemas” whose main objective consists in co-financing the digitalization process of non-commercial *gmina* cinemas. Its two other aims are firstly, to create a common internet platform for a more efficient management of the cinema network and, secondly, to monitor the relations with cinema goers in order to create an offer better tailored to their individual cultural needs as well as the demands of the civic society. This is a very important task as an active and satisfactory cultural participation based on cultural literacy is a part of modern citizenry. Education of the D-cinema staff constitutes the third target for the Foundation. It embraces three complementary aspects: firstly it concerns the staff’s technological knowledge of how to explore the innovative technological potential of D-cinemas so that they could become modern art houses, dynamic institutions of culture which focus on themselves and the socio-cultural life of the whole community. Secondly, it aims at transforming a manager of a D-cinema into a creative and passionate art lover whose artistic feel stimulates the cultural life of local people. She or he is able to perform the role because of his/her knowledge of how to manage a new cultural institution whose functions have been changed and which has to play a new role in a different internal and external environment, e.g. new logistic aspects, functioning within a network of D-cinemas. Finally, their third objective is to develop the D-network to promote culture in less culturally privileged localities [www.mskc.pl].

The Foundation has contributed to the digitalization of two non-commercial cinemas in Kraków – the cinema “Kijów” and “Mikro” which have become the first stages for live transmissions of high culture events making them more easily available to average opera and theatre lovers. In this way they have become a social inclusion factor and an important con-

stipend generating public good in form of cultural literacy. Digital cinemas have additionally strengthened the position of Krakow which has always been a culturally privileged city, for example as unquestionably the Polish capital of culture and as a holder of the prestigious title of a European Capital of Culture. Although its cultural offer is rich, it rather rarely hosts the visits of the best known world opera, theatre and ballet stars and ensembles. Moreover, their spectacles are not easily affordable, which means that consequently only a few “chosen” spectators can enjoy them. The situation, to some extent, has reinforced the belief that high culture is an elite culture, expensive and out of reach to the general public even if people are intellectually prepared to face its challenge.

In Kraków, a big change took place in 2009 with the first live transmissions of opera. It was followed by ballet, concerts and theatre spectacles. It was two years after such events took place in Prague from the initiative of a Czech, Martin Cikánek who is the author of the D-high culture concept for Central and Eastern Europe. In Kraków, the first non-commercial *gmina* cinema which promoted high culture events was the cinema “Kijów. Its initiative was followed by the cinema “Micro” which from late autumn of 2010 has been showing the spectacles of the British National Theatre from London. Racine’s *Phedre* was the first drama to start the season. Its choice was not chancy as *Phedre* was also the first live drama spectacle prepared by the British National Theatre. On 25 of June 2009 it was shown in 270 D-cinemas all over the world where there gathered over 50000 spectators. The Krakow drama live repertoire includes, among other, *Frankenstein* based on a novel by Nick Dear and Mary Shelley, Anthony Chekov’s *Cherry Orchard*, and Shakespeare’s *Hamlet*. It also offers a more popular entertainment as it showed *Fela!*, a musical from Broadway hosted by the British National Theatre. Pop culture music fans could enjoy live transmissions of concerts by such international stars as Robbie Williams, Simply Red, Metallica, Megadeth, Slayer and Anthrax.

EDU KINO (EDU-CINEMA) constitutes another segment of the alternative content of a digital cinema. It is a totally new D-product whose target audience are students at all levels of their education. So far the Małopolska Network of Cinemas (www.edukino.tvn.pl) and more exactly TVN News & Services Agency have prepared a series of multimedia lessons addressed to post-elementary school students and teachers but it is only a question of time when other students will also benefit from D-lessons. The already launched humanistic module offers an interactive and visual way to study chosen topics in history, Polish literature, society and religion. Each lesson starts with a film which is followed by all kinds of related activities provided together with it. Documentaries produced by TVN for Discovery History, resources of TVN, TVN24 and other TV thematic channels are creatively used to provide the lessons content. The second module which is being worked upon is to offer lessons in the sciences: chemistry, physics and mathematics.

EDU KINO has also completed the film and video content with lectures by well known specialists and academics in particular fields, from both Poland and abroad. They can be presented either as live transmissions or shown as a regular film. In the first case the event is interactive and despite a big geographic distance its viewers can become an active part of it. Gathered in the cinema they can participate in the lecture with their own contributions by asking questions, commenting upon certain statements, sharing their own experience, etc. They can also become one of the panelists in a panel discussion, which is a new experience for young people. In some cases when they watch the live transmission together with their mates from other schools from all over the world, the event becomes an international and intercultural debate. Its value consists in preparing its participants for becoming active in the knowledge society. They can also develop interpersonal skills against an intercultural background, which today merits as one of the most valuable soft skills.

EDU KINO offers a totally new approach to education, interactive, more personal and thus more engaging for the participants of EDU-classes. The teacher in the classroom is just a mediator, a moderator and only one out of many sources of knowledge because live satellite transmissions of lectures by international academicians and researchers offer other per-

spectives. The change of the locus of information and knowledge should make students more critical, reflexive and independent in formulating ideas. It should also encourage their analytical thinking and intellectual curiosity. EDU KINO can also be used as an efficient instrument for distant learning of larger groups.

D-cinema as a new provider of public good

The above discussion showing new possibilities of D-cinema in introducing new cultural products on the cultural market entitles us to claim that an art house, especially functioning as a *gmina* D-cinema, has become a new provider of a public good. Its activities in the field of culture generates a cultural potential which is available to all the people interested in it who do not have to compete with each other to possess more of it. Availability of the cultural offer to one person does not make it less accessible to another, which results in its fulfilling public cultural needs of all the members of a given society in the same way. The two basic characteristics of a public good – its nonexcludability and nonrivalrous consumption [Buchanan, 1967] are shared with D-cinema products. Hence, following the definition of Paul A. Samuelson, the first economist who developed the theory of public good, they are *all enjoy[ed] in common in the sense that each individual's consumption of such a good leads to no subtractions from any other individual's consumption of that good* [Samuelson, 1954, p. 388]. In this sense the distribution of *gmina* D-cinemas products serves as a public matter and secures an observance of basic human rights. This means that a public good can be claimed to be a significant marker of democratic societies: the easier a common access to it, the more equal its distribution, the stronger and more successful the democratic system. Symbolically speaking, a public good stands for human solidarity and social coherence. It also embraces a communal spirit and revives the old tradition of citizenship and governance with their roots in the Athenian democracy. It additionally implies partnership which is a source of respect and self-respect, self-recognition and the recognition of others, as well as of empowerment and co-operation, the values which have both a clearly pragmatic socio-economic dimensions and idealistic, spiritual aspects.

Digital cinema products also meet more specific requirements attached to a public good, namely, first of all, its strong identity with public affairs and higher order of values, which implies that civic responsibility, sensitivity, awareness and both empowerment and self-empowerment are its main source and its major target. A public good cannot be successfully created unless a mutual double relationship between its determinants and social attitudes can be observed. Both of them constitute its frame of reference in the process of its conceptualization, and latter of production and distribution.

A public good is often generated by means of grass root initiatives although it is both the duty and the obligation of each democratic state and of its subsequent agencies to provide individual citizens with it. While acting as its public provider it is not supposed to consider individual contribution to its production. Formal governmental initiatives are assisted by combined efforts of quasi-governmental organization (QUANGOs) as well as nongovernmental organization (NGOs), which enhances the chances that everybody, especially the most needed, will be included in benefiting from particular public goods. The role of civic organizations – foundations and associations of various kinds – is of especially big importance in new democracies where in the process of an economic transformation the government has significantly reduced its function as a main, often unique public good provider. The example of the “Małopolska Network of Digital Cinemas” illustrates the issue in the case of digital cinemas. As already said its objective is to help *gmina* cinemas fulfill their cultural mission which cannot be influenced by market competition and typical market mechanisms.

The concept of public goods has evolved in time and so has their classification. It embraces their two largest categories: traditional public goods and proper public goods. The first ones also tends to be called classical. They refer to the public goods *sensu stricte* which belong to natural resources. Their repertoire is constituted by such natural goods as: rivers, air, forests, landscape, mountains, beaches, etc. They were shared for ages and nobody questioned the right of any individual to use them for free. However, today, in most cases they have lost their status as public goods and have become susceptible to be treated as a private property whose consumption and accessibility depend on economic abilities of their potential individual users. Thus they may even contribute to creating or increasing a social divide, which makes them remain in an open conflict with democratic principles of their primary social distribution.

The second group of public goods *sensu largo* has been defined by a state political doctrine and its subsequent social policy which, firstly, decide what types of social needs are to be met by a public good provider and, secondly, make precise the extent of state intervention to have them met. As already mentioned, healthcare, education, safety and culture belong to the basic areas where public needs are manifested and to which citizens should have free access. The time when the regulations are made but has a generational dimension.

The D-cinema products definitely belong to the second type of public goods, without which human capital cannot be successfully generated, which in turn determines the welfare of each individual and of the whole community. Hence a key importance of a national social policy to encourage and support the process of digitalisation of *gmina* cinemas.

Conclusion

Digital technology has opened up the previously non-existing possibility to achieve a box success out of the reach of smaller *gmina* cinemas in the pre-D-cinema age when the distribution system instead of decreasing the cultural gap between the city and the country deepened it. It even made the latter more and more backward and accounted for the feeling of marginalization of country dwellers. As the conspicuous difference between the film offer of local cinemas and multiplexes has been significantly reduced, even made equal, the former cannot be treated as cultural relicts any longer and their name cannot be used as an antonym of cultural literacy, either.

At the same time, it can be observed how technological innovation which has resulted in a wide availability of an *alternative content* has become itself a public good and also steadily contributes to generating it which leads to a disappearance of a cultural stigma of small places which have always suffered from a cultural marginalization or even discrimination. Consequently, their inhabitants have become empowered and proud of their *motherland*, which results in their identities becoming more solid. As such they positively impinge on their daily quality of life, making, in turn, life on the periphery of big cultural centres less unattractive. This has had a direct economic impact on the localities with a poor cultural infrastructure which previously could neither successfully compete on the market and attract investors nor become a tourist magnet. The last issue is of great importance, particularly today, when most tourists have become more demanding and a beautiful landscape as well as historical heritage alone need to be complemented by other leisure offers to make them chose a place as their holiday destination.

Needless to say, the digital innovation, in our case the D-cinema, is a great “civilisational” opportunity for those who have an access to its tools and know how to explore its full potential. Small localities which have lived so far in the shadow of big cultural centres have been given a chance now but they have to learn how to use it to their advantage.

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Kino cyfrowe – rola innowacji technologicznej w generowaniu dobra publicznego

Streszczenie

Kino cyfrowe (D-cinema, DC), które powstało dzięki zastosowaniu innowacji technologicznych, pozwoliło na bezprecedensowe rozszerzenie formuły jego funkcjonowania jako wieloaspektowej instytucji kultury – domu sztuki. Zmiana ta stworzyła nowe niekonwencjonalne i kreatywne możliwości promocji kultury, zachęcając jednocześnie do bardziej aktywnego i osobistego oraz twórczego uczestnictwa w niej. Transmisje „live” najwspanialszych produkcji operowych z nowojorskiej Metropolitan Opera czy też najlepszych spektakli teatru brytyjskiego i arcydzieł baletowych pozwalają na obcowanie z najwyższej jakości wydarzeniami kultury wysokiej niezależnie od miejsca zamieszkania. Programy alternatywne (alternative content) z obszaru kultury i edukacji (EDU kino), organizowanie interaktywnych tele-konferencji i spotkań biznesowych, transmisji sportowych stanowią o potencjale kina cyfrowego.

Tym samym zwiększyła się jego rola jako domu sztuk do generowania dobra wspólnego przez znaczący wkład w zmniejszanie granicy pomiędzy kulturowym centrum a peryferiami, a nawet przepaści cywilizacyjnej, szczególnie widocznej w małych miejscowościach, które coraz częściej zamieniają się w kulturowy *no man's land*. Pełne wykorzystanie potencjału kina cyfrowego skutkuje zwiększeniem społecznej spójności, przeciwdziałaniu cyfrowemu apartheidowi, marginalizacji i wykluczeniu grup ekonomicznie i społecznie mniej uprzywilejowanych. Jednocześnie działania takie stanowią podstawą do generowania kapitału społecznego, który współcześnie stanowi o dobrobycie i jakości życia społeczeństw lokalnych i całych narodów.

Celem niniejszego artykułu jest wieloczynnikowa analiza potencjału kina cyfrowego w generowaniu dobra wspólnego na przykładzie projektu „Małopolska Sieć Kin Cyfrowych”. Jest on z sukcesem realizowany przez krakowską Fundację Rozwoju Kina, pozarządową organizację, która rozpoczęła jego realizację w 2006r. Już teraz można stwierdzić, że dzięki cyfryzacji 12 kin pozostających w gestii małopolskich gmin, znacząco zmienił się pejzaż kulturowy dzięki rozszerzeniu i urozmaiceniu oferty kulturalnej.