Economy of Culture in the Information Society Based on Knowledge

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The article develops a vision regarding the convergence between evolutions of cultural institutions, holders of knowledge and artistic values (libraries, archives, museums) and information and communication technologies, in a context created by international initiatives aimed at clarifying concepts and at building an economy of culture as part of a global information society based on knowledge. The paper identifies preliminary actors and key decisions and also presents several possible scenarios, depending on uncontrolled and unpredictable evolutions of some factors from the context.

Keywords: cultural goods, economy of culture, culture institutions, international initiatives, information technologies, knowledge society.

1. Introduction

The goal of this article is to present an up-to-date version of a vision proposed and developed in previous works (Filip, 1996 a, b) regarding the possibility of interaction among different factors (government, culture institutions, population, lucrative organizations, education and research) in order to preserve and valorize for the benefit of country, citizens and economic agents (traditional or new) the national cultural heritage. The basic elements determining the need for extension and for updating previous models result from more systematic and dynamic international approaches and from recent technological developments.

2. International context

2.1. History

Similar to many other domains of human activity in rapid expansion, the first initiatives regarding the use of information technologies within culture institutions depositing cultural goods (knowledge and artistic values) appeared in the *academic world.* Scientists wanted to find new ways of preserving cultural goods accumulated for centuries of human development, as well as to increase the number of people with unlimited (from financial, geographical, social reasons) and rapid access (Dertouzos, 1991, 1997, Saltzer, 1992).

The business world has promptly understood the opportunity to valorize noble initiatives of the scientists into new lucrative activities. The goal of these activities is to valorize, from the economic point of view, cultural heritage from libraries, archives, museums and collections, as well as to efficiently strengthen the connection between the contemporary creator of knowledge

and artistic values and the beneficiary and consumer of the production from libraries, exhibition halls and theaters (Dertouzos, 1997; Martin, 1998). In this context, it was said that 'cultural heritage for Europe is a strategic resource playing the same role as petrol for Arabian countries' (De Michelis, 1996). Although such forecasts have not been confirmed yet, in the business world have recently appeared besides technology producers, a series of economic organizations that transform, distribute and intermediate *transformed cultural goods.*

A special attention was paid to libraries and archives, the main institutions depositing information and knowledge. In order to increase labor productivity for various products and services through improved access (speed and area covered), there have been created informational instruments to assists the transformation and functioning similar to that of industrial enterprises or service providers (FN, 2001).

The third factor involved in the interaction between information technologies, creators and cultural institutions was *governmental action*. The governments of developed countries understood that *global information society* (GIS) may have a more important cultural dimension than the industrial society. This dimension was perceived as being good for the citizens ('enriched' spiritually) and for enterprises (that need to interact, not only be opponents, in the economic context which is in the process of globalization) and for communities, States and regions.

The main initiatives with a direct impact in interest area of this study were: a) American programme by NSF/DARPA/NASA entitled 'Research in Digital Library Initiative' (NSF 1998), b) Bangemann Report (1994) addressed to the Council of Europe (with regard to stimulation of the *content industry*) and especially, c) some pilot projects launched at the G7 Conference in Brussels, in February 1995.

(G7, 1995). These referred to: a) 'Intercultural education and training in GIS' (topic nr. 3), b) 'Digitised libraries' (topic nr. 4) and c) 'Extended multimedia access to the world cultural heritage from museums and art galleries' (topic nr. 5). These projects were described during the symposium 'The role of contemporary technology in the development of national cultural heritage', organized by the Romanian Academy on February 21, 1996. During the symposium was also presented the first site containing cultural information developed by ICI Bucharest, a virtual excursion to world museums and libraries. Moreover, it was presented a vision regarding the relationships to be set among various factors (governmental, culture and research institutions, educational institutions and the business world) contributing to the valorization of the national cultural heritage (Filip, 1996; Cristea, 1996; Neamțu, 1996).

2.2. Recent European trends

In Europe, it was officially accepted that 'European cultural resources and scientific knowledge constitute a unique public resource, which forms a collective memory in evolution of various (EU) societies and that constitutes a solid basis for the development of digital content industries in a sustainable knowledge society' (Lund, 2001). It has been estimated (Euroabstracts, 2001) that 'the enormous value of European cultural heritage is approximately twice bigger that the telecommunications sector'. Currently there are talks not only about content industry sector, but about 'the economy of culture'. Starting from this observation, a series of

studies and analysis, brainstorming meetings, experts and member States representatives meetings (Lund, 2001; Eva, 2001; DigiCULT 2001; Slazburg Research, 2001; Bride, 2001; FN 1998) have been trying to make a contribution to the outline of a coherent European strategy for the next 5-10 years. The main concrete elements for the actual study are given below:

- Adoption of the Action Plan *eEurope* at the European Council meeting in Feira (June 19-20, 2000). The *3rd* objective of the Action Plan refers to the 'stimulation of European content in global networks' and stipulates the 'creation of a coordination mechanism for digitization programmes between member States'.
- Adoption by the European Council on 22 December 2000 of the *eContent* programme with a budget of 100 million Euro. It aims at 'transforming the rich European [informational] content base into a competitive advantage in an information society and to ensure a more important position on the Internet for European operators' through 'access to and use of information from public sector as well as extending information offer, cultural and linguistic adaptation of information products and removing commercial barriers' (EC 2000b). The action lines of the eContent program are: 'a) improvement of access and extended use of information from public sector, b) extending content production in a multicultural and multilinguistic context and c) increasing the dynamism of the digital content market'.
- Inclusion in the Action programme *eEurope+* (EC 2000a) intended for countries from Central and Eastern Europe of some actions regarding: 'a) stimulation of development and dissemination of European digital 'content' (action 3d), support of information exploitation form public sector and set up of an European digital collection of 'key' databases and b) access to digitized cultural heritage'.
- Digital Library Initiative (DLI) aims at making Europe's diverse cultural and scientific heritage (books, films, maps, photographs, music, etc.) easier and more interesting to use online for work, leisure and/or study. It builds on Europe's rich heritage combining multicultural and multilingual environments with technological advances and new business models. It consists of two strands:

Cultural heritage: to build a common European Digital Library which would serve as a multilingual internet access point to cultural collections from all Member States (Communication from the Commission 'i2010: Digital Libraries', 30 September 2005)[32].

Scientific heritage: to ensure current and future access for research and innovation purposes.

3. Developing a vision regarding S1-SC in Romania with regard to the discussed topic

In a previous work (Filip, 1996a) there was proposed a vision upon the *convergence* of evolution of cultural institutions (libraries, museums, archives) and information technologies, being supported by arguments and emphasizing the limits and potential risks of such an action. In other previous works (Filip, 1996b; Filip, Donciulescu, Sauer, 1996; Filip, Donciulescu, Filip, 2000) this vision has been developed and supported by mathematical models which can be used for effects of various decisions regarding direct investments in cultural institu-

[32] See http://ec.europa.eu/information_society/activities/digital_libraries/doc/communication/en_comm_digital_libraries.pdf

tions, initiation of lucrative activities aimed at valorizing the transformed (digitized) cultural goods, the paid rights of cultural institutions etc. Below will be detailed some of the central up-to-date ideas on the vision and the model presented before.

3.1. Computers in libraries

In an attempt of defining 'year 2000 library', Saltzer (1992) shows some attributes of the library. The fund of physical cultural objects (books, manuscripts, scores, maps etc.) is *selective* (not everything is written, is published and not all publications are collected in libraries), *persistent* (aimed at storage/recording for a long period) and intended for use by a certain audience (unrestricted or belonging to certain categories with various access rights according to the type of library). The tasks of the librarians are not only collection, maintenance and management of the fund of cultural objects, but also assistance to users, this being the main difference between them and simple collectors.

In the case of public libraries, the 'logical collections'(containing information on objects and several catalogues, indexes etc.) outrun 'physical collections' of objects. The partition characteristic of the library, economical reasoning as well as the limited storage space, have led to this situation, whilst the recent development of communications amplified this phenomena. There are States in the USA, where a university library does not purchases a second copy of the magazine if it exits in another university library connected in the network. Recently there is a tendency among libraries to specialize, some concentrating on the accumulation of physical objects while others gather collections of information on objects and provide information and services (Saltzer, 1992).

When analyzing the use of computer in libraries during the last decades, three main characteristics can be mentioned (Saltzer, 1992):

- the first one consists in the automatization of the traditional functions (acquisitions, processing catalogues, management of borrowings and changes);
- the second one consists in the discovery of relevant documents, varying from simple searches, using classical techniques of information search (i.e. indicate all works of author X, existing at the library) to searches with elements of artificial intelligence, having results that at the moment seem less relevant (i.e. search of works containing the idea presented in work Y);
- the third direction of computer use consists in content storage and 'surfing' from text in the quoted references.

Some years ago, Saltzer (1992) proposed a simple and precise vision of the 'year 2000 library', presented below:

- Anybody connected to the network by means of a PC or a workstation (WS) can 'skim through' any book, newspaper, manuscript, score, technical report stored 'on-line' without going to the library;
- When reading over the document, the text of a quoted reference is presented in a window on the screen, the library thus becoming a huge hypertext system. The goal is not to replace books, but to facilitate 'skimming through' books before borrowing them, physical protection and parallel (several readers to the same object) and multiple (one reader to several libraries) access.

Many of the technological problems, that conditioned the implementation of this vision (improving screen resolution of workstations, increasing network transmission speed to millions of characters per second, developing hypertext databases, 'client-server' architectures and increasing the capacity of external magnetic memories) have already been solved to a certain extent.

Leaving from an observation made at the beginning of this chapter regarding specialization of libraries, the vision can be detailed and extended. Therefore, there can be 'purely electronic' libraries (not simply 'digitized'), that are specialized or intended for serving a well delimited geographical area (from the point of view of minimizing data transmission costs). These libraries can gather information about physical objects (as well as 'digitized fund') and can provide on-line documentation services at the library premises or rather distance services based on requests sent in advance (in order to solve problems regarding access priorities and the amount of data necessary to be stored 'on-line'). In the last case, the similitude to modern VOD ('video on demand') systems is not random, but is based on technological achievements in broadband networks field and 'client-server' architectures. These developments are stimulated not only by new modalities of distance work such as 'telework' (Britton, 1994) regarding the 'access' aspect, but also by new ways of cheap and especially rapid production of electronic magazines and volumes, which allow an almost 'real time' distribution of some information (especially scientific) as soon as it appears.

Nowadays, a monochrome book of 400 pages, containing text only, after scan and data compression needs 30 Mb. Therefore on a CD-ROM (650 Mb) can be 'deposited' about 20 books of this kind. From the point of view of the costs everything seems very promising: according to actual prices, an electronic copy of a book on a CD-ROM costs about 40 cents, the space needed being much smaller, whilst supervision and access are obviously much simpler and safer. The time needed for an electronic copy is much shorter that the time for printing (even in modern conditions). It is especially important (in terms of years) when we intend to make electronic copies for entire collections or libraries, even if modern technologies like Photo CD (the price is of tens of thousands) are being used. Talking about the Library of the National Institute for Research and Development in Informatics (ICI), which has stored about 30.000 volumes in the last 30 years, the implementation of the electronic versions would result in over 1500 CD-ROMs. The cost and time of transformation in this case are acceptable. But if talking about the Library of the Academy and about its fund of about 10 million objects (books, newspapers, manuscripts, medals) we intend to digitize only 1,6 million volumes; in other words 80.000 CD-ROMs are needed to host the information that is estimated at 50 Terabytes (10^{11}). It is obviously a complicated and time consuming task. But it should be analysed and eventually performed. Let us not forget that the Library of Congress from Washington comprises 90 million works which represents 2,7 Pentabytes (10^{14})! or 337500 flash-cards of 8 Gb each.

3.2. Transition towards global and virtual culture institutions

Many of the elements describing the digitization process of libraries (premises, approaches, some technological solutions) can be extended for other components of the institutions that host national cultural heritage (museums, historical monuments and sites). Therefore, below there will be presented in general a possible transition from the current modality of valorization of the cultural fund of physical objects and information (including reference info) about

this objects gathered within culture institutions (CI). This transition in characterized by several possible convergences.

Convergence will have an *impact on several fields*, like:
a) education (by increasing quality and attractiveness, variety and efficacy);
b) tourism (diversification of services offered);
c) research (by facilitating the access to information;,
d) trade (by increasing the value of the direct and indirect electronic commerce with information);
e) consumer goods industry (appearance of new products);
f) entertainment and audio-visual sector (novelty, diversity and volume increase);
and
g) creators of scientific information and cultural values (by increasing the visibility and appearance of new expression means).

Convergence can be accomplished only through conscious interaction and *network cooperation among several categories of factors*: a) *culture institutions* (CI) (libraries, museums, galleries, archives) holders of *cultural goods* (CG); b) *traditional transformers of cultural goods* (TTCG) (publishing houses, albums, catalogues, movie producers); c) *new transformers of cultural goods* (NTCG) (CD-ROM producers); d) distribution and intermediary organizations for TTCG (bookshops, kiosks, agencies) (DTTCG); e) *service providers* (SP) that explore the *digitized content* (DC), hosted or transferred by CI by means of *network operators* (NO). A special role is played by the *audience,* which is divided in *direct audience* (DA) having direct access (DA) to CG or *extended audience* (EA), that acquires traditionally and newly transformed goods – or virtual audience (VA) that has i*ndirect distance access* (IDA) for charge, to digitized content through service providers.

Taking into account recent tendencies described in article 2.2, the model needs to be complemented by:
a) governmental intervention (represented by state orders regarding access of new generation to cultural heritage and increasing country visibility);
b) explicit consideration of indirect interactions (represented by globalization and location of digital content) with foreign partners (culture institutions, service providers, financial institutions as PHARE, BERD and CE trough specialised programmes);
c) amplifying intervention of the interested economic agents, especially regarding increased access to scientific knowledge from abroad for continuing education of the employees;
d) new possibilities of the knowledge and artistic works creator to interact with the audience by means of service providers.

Of course there are other factors which interfere indirectly facilitating interactions such as banks, intermediary, consulting organizations, or those specialised in new digitization activities.

Further on we will clarify possible problems, in an attempt to answer some of the worries regarding a seeming invasion of technology and economic interests into noble and generous activities of culture institutions.

3.3. Why? (or what) a real library/museum cannot do

In order to directly perceive /have direct access to real objects, the visitor/reader must be 'there' at certain times on certain days when access is permitted, which is hardly possible for an occasional visitor. Culture institutions cannot present everything because of various reasons, whilst the modern person being time-stressed, can hardly find what he's interested in without proper guidance/individual assistance. Researchers have considerable difficulties in carrying out their studies when the subjects (or parts of them) are situated in different widespread places from the geographical point of view (rooms, floor, buildings, cities or even countries).

Because 'teleportation' of human beings anticipated in SF series is not yet possible, virtual teleportation of objects, performed through electronic access from home or study room seems to be an acceptable solution for the moment. Access 'without borders' to cultural values, at any hour for the novices, elderly, isolated people or with disabilities, without sufficient financial resources, etc. can be considered not only an accessible and comfortable surrogate, but is also a means for *democratization, integration and nondiscrimination*. It is also to be expected that distance access will not estrange people from the real culture institution, but will rather stimulate them to visit these institutions. Experience has shown that older or newer means (albums, devices, video tapes, compact discs) with traditionally (transformed) cultural products (TTP) have raised interest to visit culture institutions from a considerable part of the extended audience (EA). It is also to be expected that a considerable part of an almost infinite virtual audience (VA) due to widespread networks, will also be tempted to increase the number of direct visitors (direct audience, DA).

At this moment it is important to highlight an essential attribute of the distance access, which is completely different from traditional means (published works, tapes, CD). Informational content of network 'servers' is dynamic with a possibility of continuous updating and extension, compared to traditional means which are frozen for at least a period of time because any modification means a new publication. Of course, traditional means have their specific role. These are the physical objects themselves that can be made up of collections, thus recording collector's memories about the places they were purchased from or the events associated.

3.4. What cannot be achieved by virtual presence

First of all, the object cannot be touched. Second, it cannot be perceived in its natural environment (library or museum hall, nature). The clouds passing on the sky above a monument or the change of lights in a museum hall due to hour and season, or the street noise heard in the library can be reproduced technically, whilst things like the smell of old books, the excitement of encountering certain objects and the feeling of intimate communication with other users present in front of the same object are impossible to transmit trough computers or networks.

4. Preliminary formulation of some options

For the formulation of preliminary options the *method of scenarios* will be used (Shoemaker, 1995).

4.1 Elements taken into consideration

The main elements participating in the development of scenarios are given below.

Key decision variables, which refer to: a) decisions regarding systematic digitization and connection (of culture institutions) to international projects and networks; b) initiation of investments regarding provision of digital content services (service providers); c) diversity and convergence of methods for transformation of cultural goods (for traditional and new transformers of cultural goods); d) the degree of governmental involvement by means of programmes and state orders and by acceptance of European recommendations (by the government).

Factors influencing decisions are first of all European approaches that are in process of clarification and adoption; secondly, there are technologies under development and their accessibility (from the point of view of costs), development opportunities of informational infrastructures, and the regulations regarding the statute of public culture institutions.

Main uncertainties refer first of all to the economic evolution in general, having an impact on the purchasing power of consumers and the attitude of the public, towards successful Euro-Atlantic integration, that influences the interest of other countries for the current Romanian cultural content.

4.2. Some scenarios

Further on, several scenarios will be presented in brief:

4.2.1. Pessimistic scenario

Economic stagnation; legislation does not allow efficient valorization of the cultural content of public institutions, integration fails; a considerable number of governmental programmes are initiated, but the financing is insufficient; the preferences of the population worsen due to negative impact of TV programmes and other facile productions. In the best of cases only several culture institutions get involved occasionally and without proper support in a limited number of international projects and networks; there are also a few service providers offering important digitized cultural content without proper location.

4.2.2. Optimistic scenario

Economy develops successfully (information technology sector contributes 30% to GDP); Romanian initiatives of EU integration are successful; population has sufficient financial means and is educated in the spirit of real cultural values; infrastructure develops, the government takes into consideration European recommendations and initiatives. In this case, the goal corresponding to the vision presented in chapter 6 is accomplished in 2003 (2004), in every village there are cultural centers and schools with electronic books and with access to the digitized content of the great libraries and museums.

4.2.3. Intermediary scenario (A)

Economy has a slow but continuous ascendant evolution; although integration is delayed, the exterior interest towards Romania increases significantly; young population has a reasonable

interest for real culture; employers understand the importance of continuous education; several governmental projects are successful. Under these conditions, the government supports (with information and funds) the involvement of culture institutions and service providers in European projects and initiatives; professional associations of cultural institutions and service providers cooperate reasonably supporting the interests of its members and of the public; research creates instruments for 'localization' of important cultural digitized content.

4.2.4. Intermediary scenario (B)

The same premises from the above scenario are used. The decisions made are used for performance of a directing, fundamental project (by participation of all the representatives of the factors mentioned in article 4.1), that follows European tendencies and recommendations in an Action plan. This project is constantly brought up-to-date and represents a credible reference for governmental bodies and private sector.

5. Conclusions

International evolutions, characterized first of all by multiplication of initiatives, deepening of the systematic character of approaches by governmental factors as well as ambitious goals and rapid developments have determined the need to update the previous vision. The main conclusions are as follows:

- Access improvement as well as national and international valorization of the national cultural heritage have already become the subject of several national recommendations. These tasks have to be supplemented with dual elements of location and access facilitation to international cultural goods (knowledge and artistic values) in a global knowledge society that aims to respect and cultivate multilinguism and the contribution of every country to the diversity of collective culture memory. In this context, it is important to take into account the danger of unbalanced import-export ratio of cultural content in favor of import of foreign digitized content, either 'located' or not.
- The achievement of the desired goals: not only an increase of labor productivity (accent on knowledge related elements), but also 'enrich' citizens – without interaction and loyal cooperation of different groups of factors (governmental, culture institutions, academic world, lucrative organizations, creators of knowledge and artistic values) in a balanced way and using significant funds, from public and private sources.
- The directions of this movement are based on detailed studies carried out internationally form multiple perspectives by research institutions and consortia, involving impressive intellectual potential.
- With regard to internal evolutions in this field, it is important to understand that they can be analyzed only in the context of general evolution of the country (economy and population preferences) and that they also depend on the international perception and interest towards Romania, which are still influenced by many uncertainties.
- Highly important is to closely follow international tendencies, desirably in a systematic manner and with organizational and financial support from the State, paying special attention to various initiatives and movements that aim at the creation of a global economy of culture.

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