

## **Municipal libraries and new technologies**

**Marina Nikta<sup>1,2</sup> and Christos Karydis<sup>2</sup>**

<sup>1</sup>Municipal Library of Korydallos, Manager of Cultural Units

<sup>2</sup>Ionian University-Department of Environment, Division: Conservation of Antiquities & Works of Art, Zakynthos, Greece

**Abstract** Our era is characterized by the presence of new technologies in every aspect. Like all organizations, libraries are called upon to adapt to the new data and the developments they bring about. The exploitation of technology and applications enables the creation of a more integrated organization of their services through digital proposals. The adaptation of Public Libraries to the new technological era makes the organization of knowledge and information easy, fast, direct and effective and this is the goal of any organization that operates anthropocentrically and has an active role in society. New technologies have highlighted much more strongly the need for changes in all areas of their activity in order to be able to meet the modern demands of users, and signaled their entry into a new era, where their position was in fact more upgraded as channels of Knowledge and information.

**Keywords:** Public Libraries, new technologies, adapting to new data, exploitation of technology

## **1. Libraries and automation: Presentation of changes and developments**

The constantly changing conditions in today's society, with the advances of information and communication technology, have not left the Public Libraries unaffected. On the contrary, the introduction of new technology in them imposed changes in all areas of their activity in order to be able to meet the modern demands of users, and signaled their entry into a new era, where their position was in fact more upgraded as channels of Knowledge and information.

In recent decades, the rapid advances in technology and in particular the dominance of digital technology, coupled with the extremely increased demands of the information society and knowledge, as well as the great opportunities for growth brought by Internet domination (Kotler, N., & Kotler, P., 1998; Gantzias, G., 2000b; Gantzias, G., 2001; Bitsani, E., 2004; Prets, C., 2003; Proctor, T, 2007), signaled significant developments in all sectors of economic, social and cultural happenings. As expected, the use of computers and the incorporation of telecommunication technologies into the day-to-day operation, digitization and electronic use of documents did not leave the model of operation of a typical traditional library unaffected, thus creating new data and new opportunities for development, prosperity and quality and introducing new cultural components and technological specifications into the delivery and transmission of the cultural product (Dertouzou, M., 1998; Gantzias, G., 2001; Gantzias, G., 2002). This process of changing and moving to a new state, a rather difficult process, and, in any case, constant and changing, has resulted in the attempt to transform the conventional library form and the standard information service from the role of the simple intermediary to the one of the essential information handler (Tedd, 1980; Reynolds, 1985). During the 1960s, the "collapse" of manual systems in libraries is perceived, mainly due to the particularly increased movement in lending and the acquisition of new material. At the same time, the computer is embracing, as a tool and as a technological

development, a broader social layer of activities. Thus, the collapse of manual lending systems, coupled with the advent of computer technology, has given libraries the opportunity to realize quite early the opportunity presented by the exploitation of the new medium. Although computers, slowly but steadily, have been exploited in various parts of the library (borrowing, cataloging, etc.) and improved, or even altered, some of the key elements in the way work was performed on these services, the key impact on their first years of integration into libraries were that they helped them perform the same functions faster and with less human effort (Reynolds, 1985, p. 22).

Developments in the application of computing systems in libraries follow, in general, developments in computing technology itself. One of the most notable features of this route is the gradual and accelerating power<sup>1</sup> of computing systems and, moreover, the greater processing power resulting in increased data processing capabilities. Media storage, from 5.25-inch floppy disks and Blu-Ray discs to the latest solid state disks (SSDs) and pen drives (USB Sticks), has shaped a new reality for the convention library in terms of both its collection tools and the documents themselves, as the distribution and their management depends on and is influenced by the space available for their registration. With the advent of computing technology in the library, the multiple advantages it offered (the ability to process, store and manage large volumes of primary documents, data and metadata) quickly became apparent, something that gradually changed the structure of its operation and led to an ever-increasing and wider use of computer systems in libraries (Bokos, 2001, p. 84).

## **2. The online era of libraries**

---

<sup>1</sup> Known as Moore's Law, the power of computing systems will double every 18 months (Gordon E. Moore, 1965). The original article is available at: [ftp://download.intel.com/museum/Moores\\_Law/Articles- Press\\_Releases / Gordon\\_Moore\\_1965\\_Article.pdf](ftp://download.intel.com/museum/Moores_Law/Articles-Press_Releases/Gordon_Moore_1965_Article.pdf)  
Last accessed 2/6/2019

The development of online library systems, in a period that reaches today, has four phases<sup>2</sup>. The first phase involved the development of innovative ventures within the library (lending, designing online acquisition systems, periodic audits, cataloging). The evaluation of this first period is the limited functionality of the system, the weaknesses that made it practical, problematic and dysfunctional (Reynolds, 1985). On the other hand, the positive assessment of their contribution is to support functions that are by their nature complex, time-consuming and repetitive (borrowing / listing). The solution to the problem was the attempt to create a bibliographic data exchange system<sup>3</sup>, an effort that gradually led most libraries to not only exploit the benefits of computing, but also to adopt collaborative schemes<sup>4</sup> (second phase), so that together reap the benefits of new technology as they offer a range of solutions to issues<sup>5</sup> such as: bibliographic access to collections of other libraries, operating systems sharing between collaborating libraries, exchanging bibliographic records, collaborating on the development of collections, catalog creation etc. (Zachos, 1998, p. 176)<sup>6</sup>. The success rate has gradually led to new data and, since the second half of the

---

<sup>2</sup> For evolutionary periods see: Frederick G. Kilgour, "History of Library Computerization", *Journal of Library Automation*, 3, 3 (1970), 218-229.

<sup>3</sup> Indicatively: the BALLOTS system (This was an online data processing system at Stanford University (Bibliographic Automation of a Large Library Operation using a Time-sharing System). like no other system in American Library (Bokos, 2002).

<sup>4</sup> The most well-known collaborative scheme in the US is that of the OCLC <http://www.oclc.org/> For Collaborative Figures: Kenneth Futura, "The Impact of Automation on Professional Catalogers", *Information Technology and Libraries*, Vol. 9, no. 3 (1990), 242-252., William Saffady, *Introduction to Automation for librarians* (4th ed.), Chicago: ALA, 1999.

<sup>5</sup> Bokos, 2002, pp. 88, pp. 104-105.

<sup>6</sup> Zachos, G., (1998), "Libraries Consortiums: International Experience and the Prospects of Creating a Consortium of Greek Academic Libraries". *Organization and Collaboration of Academic Libraries in the Digital Age: Proceedings of the 7th Panhellenic Congress of Academic Libraries*, Volos. Source:

<http://www.gzachos.gr/career/speeches-of-george-zachos/163-logo-editing.html>  
Last accessed 2/6/2019

1970s, the computer system has been wholly owned by the library, which now has complete hardware and software packages, turnkey systems<sup>7</sup> (third phase). In this case too, support for the functions proved to be ineffective, as the dependency of the employees and the users on the computers was enormous and all the functions of the library required the installation, operating configuration, use and general management of different subsystems. Finally, the shortcomings and weaknesses of these systems have come to bridge the integrated library systems<sup>8</sup>, which are the last (fourth) phase of the evolution of the theme of "library automation". The two most important differences that these systems have with respect to the preceding ones refer to their ability to support multiple functions of the library or all of its functions, while the second, and perhaps most important, of these multiple functions are supported from a single bibliographic database<sup>9</sup>. This second property is also the hallmark of these systems<sup>10</sup> (Bokos, 2002, p. 107)

### **3. Contribution of computer technology to the evolution of services offered by the Municipal Library**

---

<sup>7</sup> Greek version of the term "turnkey systems. Indicatively we refer to CLSI, LIBRIS, BIBNET and others.

<sup>8</sup> For integrated systems concerning library standards and rules see: Semertzakis, E., (2009), Integrated Library Management Systems, Essential Subsystems, Cataloging on the Internet, New Advanced Technologies., 2009. In Library Organization and making use of ICT, Lamia (GR), 28 April. (Unpublished) [Conference paper]. Source: <http://eprints.rclis.org/13336/> Last accessed 31/01/2015

<sup>9</sup> For "databases" together with the system managed by "database system" see: (Korobili-Xantinidou, Stella, 2000).

<sup>10</sup> Some of the first automation programs that incorporated these properties were DOBIS / LIBIS, ILS, VTLS, while in the case of Greece, libraries mainly use: ABEKT (National Library Automation Documentation Center), Horizon and Advance. ---. Bibliography on the basic subsystems of automation systems see: (Tedd, 1980, p.104-105, p.100-101, p.161-163, p.132-134) --- Online Catalog (OPAC) (Reynolds, 1985, p. 72; Tedd, 1980, p. 99).

The challenges facing Municipal Libraries today as well as the increasing demands of users are the driving force behind the adoption of new technologies to achieve and ensure the provision of optimal services. From the work done so far by the Municipal Libraries, it is concluded that the overwhelming majority of the problems are gradually ceasing to exist. Initially, the effort was started to upgrade the Municipal Libraries and any future actions were planned in addition to the replenishment of lost time. Through coordinated and collaborative work, stakeholders have taken advantage of the valuable experience gained from the automation process and now, the majority of Municipal Libraries have the tools necessary to effectively reach their users, in a constantly changing world where technology is increasingly conquering the key areas of daily life.

As computer systems evolve, the first attempts to create online OPAC directories appear<sup>11</sup>. The increased needs to meet the bibliographic requirements of users and the benefits of a centralized cataloging system have reversed the negative climate so far, and many Municipal Libraries have begun to show a strong commitment to promoting their services the type of Collective Catalog<sup>12</sup> and the cooperative cataloging model to follow. The benefits to both the public and librarians have been impressive: searching through a shared interface of dozens of Municipal Libraries, satisfying lending requirements, copy cataloging,

---

<sup>11</sup> The public automated online catalog of a library has been a more recent development of automated systems than other key subsystems such as lending and cataloging. The ultimate goal of an OPAC is to create and manage a directory of contents of a library or library set. The main difference between it and other subsystems is that it is intended for library users, so it is the only subsystem of an automated system with which the user comes into direct contact, while all the work required to implement it remains "invisible". to him (Reynolds, 1985, p. 72). --- For example, the online directories with brief guidebooks for using Municipal Libraries can be found at: [http://argo.ekt.gr/Opac2\\_6/zConnectELL.html](http://argo.ekt.gr/Opac2_6/zConnectELL.html). "Argo" was created by the National Documentation Center and is funded by the Horizontal Action of Municipal Libraries (<http://argo.ekt.gr>). Last accessed: 08/09/2014

<sup>12</sup> Collective Catalog of Greek Municipal Libraries  
Source: <http://147.102.210.203/cgi-bin-EL/egwcgi/egwirtcl/targetsML.egw>  
Last accessed 02/02/2015

promoting cooperative cataloging models (Brattis et al., 2008)<sup>13</sup>. At the same time, with the creation of the Collective Catalog, Municipal Libraries were able to fill the huge gaps created by the indifference of central and local government to them as it:

- 1) Opened local directory portals to users nationwide.
- 2) Created bibliographic catalogs in libraries that lacked staff.
- 3) Enabled automation, internet access, technical infrastructure and support.
- 4) Created the conditions to develop services that could not be implemented (eg interlibrary loan)
- 5) Led to collaborative cataloging models of common rules and established archives, as well as collaborations with other Greek libraries based on international library standards<sup>14</sup>.
- 6) Greatly reduced the cataloging time of the material as there was a large overlap of bibliographic records, most of which covered common thematic categories (Brattis et al., 2008).

On the other hand, however, the use of computing technology in the evolution of Public Library services also erases a tendency for even more "independence" of people involved in an information process in the digital world than traditional partners who have managed<sup>15</sup> it for years. A trend that has, in turn, led to the creation of organizations that operate exclusively in a digital world and manage the digital form of information<sup>16</sup> and, on the other hand, the belief that the

---

<sup>13</sup> Brattis, P., Kouves D., Efthymiou F., "Collective Catalog of Municipal Libraries: The First Step to Upgrading Municipal Libraries", 1st Panhellenic Conference of Municipal Libraries, Heraklion Attica, 4-5 / 12/2008.

<sup>14</sup> For example, Academic Libraries in our country have very successfully implemented international library standards for the organization of their functions (Brattis et al., 2008).

<sup>15</sup> On the dynamic role-playing and the ambiguity created: Patricia Milne, "Scholarly Communication: Crisis, Response and the Future: A Review of the Literature," *Australian Academic & Research Libraries*, 30, 2 (1999), 70-88.

<sup>16</sup> A prime example of this evolution is the two main actors of information in the digital environment: 1) The e-book: (Siriginidi Subba Rao, 'Familiarization of Electronic Books', *The Electronic Library*, 19, 4 (2001), p .247-256) --- Ronald Jants, «E-Books and New Library Service Models: An Analysis of the Impact of

Municipal Library would lose its role in the new information environment as it is threatened by the use and exploitation of digital services as developed by the wider information community in recent decades. But the ability to search for information using world-class common tools can abolish, to a certain extent, the classical concept of the Municipal Library (as an information institution); however, it offers new functional roles (as a mechanism to ensure faster, meaningful and seamless access to information), while at the same time enhancing the more effective management of information resources available on behalf of the user<sup>17</sup>. Thus, the role of libraries acquires a new dimension, as the complexity and heterogeneity resulting from the processing of the same presupposition reinforces the logic of the organized information service by those who are appropriately trained and qualified. In addition, this logic enables Municipal Libraries to make their collections and documents available on the web without having to abandon the material<sup>18</sup> processing templates that are a fundamental part of a library's structure (Bokos, 2002).

In conclusion, the mechanisms and functions of the modern information environment continue, as in the past, to influence the way the library exists and operates. It is only now, however, that this relationship is changing more

---

E-Book Technology on Academic Libraries», *Information Technology and Libraries*, 20, 2 (2001), 104- 115. --- Source of e-books is the Amazon.com website, ([www.amazon.co.uk/](http://www.amazon.co.uk/)) an innovative service for Internet users.2) Online Magazine: A particularly rich source of bibliographical information The bibliography of Charles W. Bailey, Jr., *Scholarly Electronic Publishing Bibliography*, available at: <http://www.digital-scholarship.org/sepb/sepb.html>.

<sup>17</sup>Examples of cataloging the material available on the Internet by groups organizing information in databases in ways that they consider most relevant to the world and the nature of their own specialized information are the Internet Movie Database ([www.imdb.com](http://www.imdb.com)) and Open Directory Project ([www.dmoz.org](http://www.dmoz.org)). --- To change the role of the library in the new environment and integrate processes resulting from the dissemination of information on the Internet, see Kate Sharp's remarks, "Internet Librarianship: Traditional Roles in a New Environment," 66th IFLA Council and General Conference, 13-18 August 2000, Jerusalem, Israel, (<http://www.ifla.org/IV/ifla66/papers/005-120e.htm>).

<sup>18</sup>For the qualifications that should characterize any online library service, see: Andrew K. Pace, (2002) & Grand and Fast, (2004).



frequently and with greater speed and ease, forcing it to develop new activities and evolve what it has always had, in the context of what we now call a "global information environment". A skill that requires a combination of traditional techniques such as classification and cataloging, as well as knowledge of new processes and evidence, such as e-book and information documents in a network environment (Bokos, 2002).

#### **4. Modern information environment**

Rapid developments in the production, distribution, organization, and utilization of the information provided by the library have led, almost certainly, not only to new tools and ways of carrying out the information task, but, above all, to the creation of a new and completely different perceptions and attitudes. It is, in essence, the creation of a new "information culture", with perhaps a distinctive feature of this "single information space". In emerging trends, the concept of "unified" refers to and implies: a) the formation of the information space in such a way that the processes of producing, transmitting, searching, locating and exploiting information for the producer and user of information are unified and, b) the development of a single form of user input in the field of information (equipment, software, etc., practice and methodology). Although it is not possible to predict the shape of the new environment, even if it is only a short time from today, it can still identify it with features focused on: a) the gradual weakening of the dividing lines, discrimination and rotation roles among the key players in the process of organizing and exploiting information, b) the abolition of place and time parameters in the process of using information, c) the formulation of a unified way of access, use, multiplication of forms and channels for the handling and storage of information, intellectual creation (Bokos, 1998, p. 22). In essence, the trends that lead to these developments are caused by data that are based on: 1) the widespread penetration of computing technology into the information space and all forms of social activity, 2) the ever-expanding penetration of the Internet (expanding user percentage /

integration) more and more traditional functions and services), 3) the intense digital content development activity, 4) increasing user familiarity with new information technologies, both through a from the standard educational channels, as long as and by the informal but extremely powerful impact of the social environment, 5) launching, consciously or unconsciously, a process of converting conventional libraries into "hybrid libraries" in the sense of accessing a variety of categories and types of traditional and digital material, without specifying or place or time constraints (Bokos, 1998, p. 22-23).

Consequently, in the "new information environment" the changes that have occurred since the integration of new technologies are gradually causing a radical change in both the structure, the form and the logic in which the information space operates. Although it is possible to differentiate and possibly limit the physical and spatial presence and substance of the "library" institution, in practice this institution will be operational in scope, incorporating not only new categories of material but, in particular, new functions, responsibilities and roles designed to meet and implement, within a configurable, information environment, the "new" information needs of users.

## **References**

### **In Greek**

Gantzias, G., (2000b), "New Technologies, Cultural Management and the New Economy" in Gantzias, KG & Kamaras, D., Digital Communication and the New Media in the Greek Information Society, London: Zeno Publishers, pp. 57-93.

Gantzias, G. (2002), "The Culture of Knowledge and the Knowledge of Technology" in Special Annual Financial Issue, Trends- The Greek Economy 2001, February, Athens: All Media Media.

Dertouzou, M., (1998), what is to come. How the new world of information will change our lives, by K. K. Kouniotis, Athens: Lebanon.

Zachos, G., (1998), "Libraries Consortiums: International Experience and the Prospects of Creating a Consortium of Greek Academic Libraries". Organizing & Collaborating Academic Libraries in the Digital Age: Proceedings of the 7th Panhellenic Academic Libraries Conference, Volos

Πηγή: <http://www.gzachos.gr/career/speeches-of-george-zachos/163-logo-editing.html>

Last accessed 31/01/2015

Korombili - Xantinidou, St, (2000), Online Information Retrieval, Athens: [ca]. Bitsani E., (2004), Cultural Management and Regional Development: Cultural Policy and Cultural Product Design, Athens: Dionikos.

Brattis, P., Kouves D., Efthimiou F., Municipal Libraries Collective Catalog: The First Step to Upgrading Municipal Libraries, 1st Panhellenic Conference of Municipal Libraries, Heraklion Attica, 4-5 / 12/2008.

Bokos, G.D., (1998), "A Single Information Space: The Role of Academic Libraries in the Greek Environment", Organization and Collaboration of Academic Libraries in the Digital Age, 7th Panhellenic Congress of Academic Libraries. Volos: University of Thessaly Library

Source: <http://lekythos.library.ucy.ac.cy/handle/10797/12036>

Last accessed 31/01/2015

Bokos, G.D., (2001), Introduction to Information Science, Athens: Papatiriou, 2001.

Bokos, G.D., (2002), Technology and Information: From Book Management to Knowledge Management, Athens: Papatiriou, p. 93.

Semertzakis, E., (2009), Integrated Library Management Systems, Essential Subsystems, Directory Cataloging, New Advanced Technologies, 2009. In Library Organization and ICT Development, Lamia (GR), April 28. (Unpublished) [Conference paper]

Source: <http://eprints.rclis.org/13336/>

Last accessed 31/01/2015

### **In English**

Bailey, C., W., J., Scholarly Electronic Publishing Bibliography, available at:  
<http://www.digital-scholarship.org/sepb/sepb.html>

Gantzias, K. G., (2001), *The Dynamics of Regulation: Global Control, Local Resistance*, UK: Ashgate.

Grand, C., [and] Fast, K., V., «Academic Libraries and the Semantic Web: What the Future May Hold for Research - Supporting Library Catalogues». *The Journal of Academic Librarianship*, 30, (2004), 382-390.

Futura, K., The impact of automation on professional catalogers, *Information Technology and Libraries*, Vol. 9, no. 3 (1990), 242-252.

IFLA, (2010), *Public library service guidelines*, 2<sup>nd</sup> ed., Christie Koonz and Barbara Gubbin eds., The Hague: IFLA Publications 147.

Jants, R., «E-Books and New Library Service Models: An Analysis of the Impact of E-Book Technology on Academic Libraries», *Information Technology and Libraries*, 20, 2 (2001), 104-115.

Kilgour, F., G., (1970), «*History of Library Computerization*», *Journal of Library Automation*, 3, 3, p. 218-229.

Kotler, N. & Kotler, Ph., (1998), *Museum Strategy and Marketing: Designing Missions, Building Audiences, Generating Revenue and Resources*, San Francisco: Jossey-Bass Publishers.

Milne, P., «Scholarly Communication: Crisis, Response and Future: A Review of the Literature», Pace, A., K., *Redefine the Experience, Not the Library*, *Computers in Libraries*, 22, 9 (2002), 47-49.

Prets, C., (2003), Working Document on Safeguarding and Promoting Cultural Diversity, UNESCO-Committee on Culture, Youth, Education, the Media and Sport.

Proctor, T., (2007), Public Sector Marketing, Essex: Pearson Education Limited.

Reynolds, D., (1985), Library Automation: Issues and Applications, New York: Bowker, pp. 4-5

Sharp, K., Internet Librarianship: Traditional Roles in a New Environment, 66th IFLA Council and General Conference, 13-18 August 2000, Jerusalem, Israel, (<http://www.ifla.org/IV/ifla66/papers/005 - 120e.htm>).

Subba Rao, S., «Familiarization of Electronic Books», *The Electronic Library*, 19, 4 (2001), p.247-256)

Tedd, L. A., (1980), An Introduction to Computer-based Library Systems, London: Heyden.

## **WEBSITES**

Gordon E. Moore (Moore's Law)

Source: [ftp://download.intel.com/museum/Moores\\_Law/Articles-Press\\_Releases/Gordon\\_Moore\\_1965\\_Article.pdf](ftp://download.intel.com/museum/Moores_Law/Articles-Press_Releases/Gordon_Moore_1965_Article.pdf)

<http://www.oclc.org/>

<http://www.gzachos.gr/career/speeches-of-george-zachos/163-logo-editing.html>

<http://eprints.rclis.org/13336/>

[http://argo.ekt.gr/Opac2\\_6/zConnectELL.html](http://argo.ekt.gr/Opac2_6/zConnectELL.html)

[http://argo.ekt.gr/Scripts/abekt\\_zgate.exe/zprevsearch?ws=0&wg=7&wgt=0&lang=ELL&attrset=1&id=1422439510\\_508&historyindex=-60](http://argo.ekt.gr/Scripts/abekt_zgate.exe/zprevsearch?ws=0&wg=7&wgt=0&lang=ELL&attrset=1&id=1422439510_508&historyindex=-60)

<http://147.102.210.203/cgi-bin-EL/egwcgi/egwrtcl/targetsML.egw>

622 *Nikta, M. & Karydis, C.*

[www.amazon.co.uk/](http://www.amazon.co.uk/)

[www.imdb.com](http://www.imdb.com)

[www.dmoz.org](http://www.dmoz.org)

<http://argo.ekt.gr/>

[Διαδικτυακής Εφαρμογής Εξ Αποστάσεως Επιμόρφωσης «ΑΒΕΚΤ e-learning»](#)

<http://abekt.ekt.gr/node/64>

[http://www.infolibraries.gr/?page\\_id=146](http://www.infolibraries.gr/?page_id=146)

[http://www.infolibraries.gr/?page\\_id=36](http://www.infolibraries.gr/?page_id=36)