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From Divergence to Convergence in Hungarian Librarianship: Towards a Common Digital Platform

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Abstract: Hungarian librarianship and related research are sadly underrepresented in international literature. With this article we intend to fill this gap and inform the experts of library and information science of some of the most recent Hungarian innovations. After showcasing the international professional connections of Hungarian librarianship, we present the structure of the Hungarian public library network and its mode of operation. We also analyse current and future main digital development plans, projects and the most important related professional activities of Hungarian libraries. Emphasis is placed on information systems promoting cooperation between libraries and the issues of the National Library System Project, which is a large-scale modernisation programme carried out between 2016 and 2018, designed to develop the IT system of the National Széchényi Library. After introducing the information systems of academic and specialised libraries and the access models of scientific databases provided by multinational and Hungarian content services, we also discuss the endeavours of public libraries aiming for multifunctionality and community organisation. The paper ends by providing insights into how the outcomes of the recent initiatives have been fed back into Hungarian LIS training courses offered in higher education.

Keywords: librarianship, information systems, national development programmes, training, Hungary

Introduction

The awakening of the computer era during the sixties was paralleled by the firm establishment of socialist governments, also requiring the reorganisation of governmental institutions. In 1989, however, Hungary became a democratic state, followed by the entry of the country into the European Union in 2004. A lot has changed since the transition, with important consequences which cannot be avoided by libraries. First, libraries lost – at least partially – their central support, power and some of their vital resources; the available legal, social and political framework is likely not sufficient to compensate for this loss. Luckily, the Hungarian library system never lost its connections with the international library system. Hungarian libraries managed to maintain their memberships in various international library organisations and actively participated in their work. A good example is the IFLA Congress in Hungary, which was held in 1972, still during the socialist era (Wilhite 2012). Ágnes Barátné Hajdu, Associate Professor of Eötvös Loránd University in Budapest, President of the Association of Hungarian Librarians, is now in her second cycle as a member of the IFLA Governing Board.

Nevertheless, the presence of Hungarian librarianship is underrepresented in the international press. Moreover, in Hungary there are no journals published in English on library and information science; therefore, we feel that our work in representing Hungarian librarianship to an international audience is of high importance (Áts et al. 2012; Németh 2014). More than 15 years have passed since the most recent English publication comprehensively introducing the Hungarian library system to the international professional audience was published with the support of the British Council in 2006. Its contents have become outdated since then, which is why there is an urgent need for an update (Ministry of Education and Culture 2006).

Maintaining and Managing Hungarian Libraries

The most important statistics of Hungarian libraries are the following: 3,384 public libraries (88 % of them offer internet access); 1,512,533 adults registered in public libraries each year; libraries have been accessed and used remotely 34,130,797 times; there are 21.8 million book loans from public libraries each year; there is one library per 2,952 inhabitants (Public Libraries 2020 2017).

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The statutory framework of Hungarian library law is governed by Act CXL of (1997) on Museums, Public Library Services and Community Culture, detailing the rights, duties and obligations of library property belonging to the cultural heritage. Ministry of Human Capacities (Emberi Erőforrások Minisztériuma) Decree No. 30/2014 contains additions regarding museums and libraries; among other things, it explains the tasks and renewed responsibilities of the national library in detail.

In addition to statutory regulations, library strategies issued by the Ministry of Human Capacities are the guiding principles for Hungarian libraries. Since the 1997 law, three library development strategies have been published. As the last independent strategy, the concept of library development as published in the Portal Program (Skaliczki 2008) for the period 2008–2013 can be mentioned; recently there has been no known national guideline document published, therefore, nowadays professional orientation is typically implemented through legislations, applications and major projects (Kiszl 2017c, 17).

These centrally targeted directions are also needed because the maintenance and support systems of libraries are far from being uniform. The National Library of Hungary, the National Széchényi Library and the National Foreign Language Library and Music Collection are maintained by the Ministry of Human Capacities. In addition to the Ministry of Human Capacities, we must mention the National Library Board of Trustees in the case of the National Széchényi Library (Decree No. 165/1999). Local municipal libraries with county-level scope and all other municipal libraries are maintained by the municipality's own council, while the libraries of universities (Szögi 2008) and school libraries are maintained and supported by their own educational institutions. The Debrecen National and University Library (Debreceni Egyetem Egyetemi és Nemzeti Könyvtár) should be highlighted, for which the law provides second national collecting tasks. The situation of church libraries is similar, as they are maintained by their own church. We also need to mention specialised libraries (detailed in Schedule No. 3 of Act CXL of 1997), maintained by their national/governmental overseeing bodies. Of course, other sources of funding are available besides the maintenance allowances. Around the world, the work of a librarian also includes the constant struggle for obtaining external resources, with the same applying in Hungary (Kiszl 2015a).

The task of the Hungarian libraries set out in the Act and the Ministry Decree is to organise their services in the light of quality management considerations. For this reason, Hungarian experts have developed a complex self-evaluation system for libraries, using the foundations of the EFQM, which was named the Common Library Evaluation Framework (Kiszl 2017b).

Digital Library Services in Hungary

Encouraging Start

Hungarian librarians played a very important role in disseminating and promoting the use of the Internet in Hungary. In the middle of the 1990s, some Hungarian libraries pioneered to start two nationwide projects. One of them, launched in 1994, was the Hungarian Electronic Library (Magyar Elektronikus Könyvtár/MEK) (http://mek.oszk.hu/indexeng.phtml) (Hungarian Electronic Library 2012). The other, started one year later, was the Hungarian National Shared Catalog (Magyar Országos Közös Katalógus/MOKKA) (http://www.mokka.hu/en/web/guest/home), originally founded by the 15 largest libraries of Hungary (Hungarian National Shared Catalogue 2011). Both initiatives eventually ended up in the National Széchényi Library.

The first interactive electronic community forum for librarians – called the KATALIST (https://listserv.niif.hu/mailman/listinfo/katalist) email-exchange mailing list – started right after the birth of the Internet in Hungary, on January 1, 1992 (Moldován 2004). It is important to note that this was the first mailing list in Hungary. The first Hungarian-language textbook on internet usage was also written by librarians (Bakonyi, Drótos, and Kokas 1994), while library databases were among the first internet services.

One digital library programme that stood out among the initial few is that of a national institution, founded in 1997 but no longer in existence, which became known as "Neumann House" after its domain name. Its primary functions were participating in the digitising of cultural heritage, launching related network services and coordinating all connected activities. Out of all its former services only one remains: the Digital Academy of Literature (Digitális Irodalmi Akadémia/DIA) (http://www.dia.hu).

One of the most prominent cooperative initiatives of renowned libraries with major collections of old books (codices) is the international programme entitled Bibliotheca Corviniana Digitalis (http://www.corvina.oszk.hu). Its aim is to virtually restore the Bibliotheca Corviniana, the Renaissance library of the Hungarian King Matthias (1443–1490). The large-scale, scientifically sound work started in 2001 and encouraged further research with bibliographical and research studies. The

project was also supported by UNESCO, but unfortunately was left unfinished. Besides the codices of the hosting institution, the National Széchényi Library, only one single Corvina from the Library of the Hungarian Academy of Sciences can be browsed on the page. The photographs of unique bibliographical pieces from other Hungarian libraries and foreign collections (e. g. that of Florence, Madrid or New York) are not available for download. A tell-tale sign of the programme's suspension is the fact that the University Library of Eövös Loránd University made all the Corvinas from its collection available in its own repository (https://edit.elte.hu/xmlui/handle/10831/125/browse?type=subject&value=corvina) at the same time, without uploading them to the Bibliotheca Corviniana Digitalis.

In the area of digitisation, the pioneering role of Hungarian libraries and librarians in early digital services is also undeniable. Numerous digitising workshops have been established all over the country, both in public and in specialist libraries. Although users' needs were rapidly recognised and services started to be adapted accordingly, the major breakthrough in digital document services was lagging behind. At the national level, digital document delivery was characterised by a general disorganisation and lack of structured central management. It also caused such serious difficulties that even ad hoc subsidies were unwisely and poorly allocated. An all-encompassing, digital registry is yet to be created in Hungary. Nowadays, these conditions seem to be improving and the current efforts of reorganisation are promising. Therefore, our present study focuses on these ongoing reorganisational processes.

Basic Common Developments

The libraries of the world and the Hungarian initiatives are all aimed at the development of a unified library system, to create unified common services that simultaneously achieve professional collaboration and customer service. From the eighties on, more and more libraries have operated isolated machine catalogues and integrated library systems. With the introduction of the Internet, it was possible to make these local directories remotely accessible and available, and to perform joint searches in them. Several attempts have been made to develop common catalogues and common cataloguing systems over the past period.

These developments were based on different concepts. One of these is from 1992, when OSZKÁR wanted to build a model of a common catalogue from one set of records (Tóth 2009), while others (KözElKat) have targeted a virtual shared catalogue in which members' records are not loaded in a physically shared database, but can be searched simultaneously (in parallel) through a common search platform (Balázs and Burgermeister 1997). These projects do not exist anymore.

A nationwide system that enables document forwarding between libraries is the electronic service centre of the National Document Delivery System (Országos Dokumentumellátó Rendszer/ODR). This centre started its operations in 1998. The obligations of the ODR are registering and following the completion of interlibrary loan requests and the registration of libraries.

The MATARKA (Magyar Folyóiratok Tartalomjegyzékeinek Kereshető Adatbázisa/Hungarian Periodicals Table of Contents Database) (http://www.matarka.hu/index.php?nyelv=eng) project was launched by University of Miskolc, Library, Archives, Museum in 2002 and today functions in cooperation with several libraries. The database is one of the most used periodical data sources, since it contains the table of contents of scientific and technical journals in an easily searchable way.

Since the turn of the millennium there has been an increased demand for the creation of national services that override local libraries. One of these progressive initiatives was the renewal and linking of the MOKKA with the ODR, which became a fundamental system of library cooperation: a common library catalogue that contains a document forwarding system.

In the period of 2010–2011, MOKKA–ODR has undergone a major modernisation with the support of European Union grants. This development affected the central library catalogue, while also expanded the interlibrary loan system and database records.

At the same time the demand for the legal provision of electronic documents has become increasingly pronounced. At this time the ODR system was expanded with the National Electronic Document Delivery System (OEDR), while the OEDR System was established in order to create a new electronic service. A large-scale project was thus set up under the leadership of the National Széchényi Library: the National System, Database and Repository of Electronic Document Delivery (ELDORADO) (https://eldorado.oszk.hu/frontend-webapp/index.html#/home), with a total budget of approximately USD 962,000. The system allows users to access digital content from their homes (National Széchényi Library 2015).

Unfortunately, the straightforward and timely goals of ELDORADO, the legal provision of digital content could not be fully realised. The primary reason for this

is that due to complicated legal regulations, clarifying and obtaining rights is a very complex issue, the solution of which is, unfortunately, hindered by serious difficulties. The joint rights management of fiction and science works could not be anticipated either. The other serious obstacles were the technical difficulties encountered when e-lending was set up. Despite the difficulties, the service continues to operate with reduced functionality.

A New Dimension in National Library Collaboration

After 2014 it became clear that a much more complex platform needed to be created. The development of a higher-level, single library system has become timely, requiring a new approach to the management of Hungarian librarianship. Therefore, at the initiative of the Library and Information Centre of the Hungarian Academy of Sciences, on November 8, 2016 the National Library and the head of several university libraries and specialised libraries signed a Memorandum of Understanding, in which they agreed that "a shared platform, a computer-based system is deemed necessary for effective collaboration, using new generation of innovative technologies" (Library and Information Centre of the Hungarian Academy of Sciences 2016), and the National Széchényi Library was appointed as the main developer and supervisor of the project. The Memorandum of Understanding is open and additional libraries are free to join.

With this initiative, the government adopted the plan for the IT development of the National Széchényi Library and enacted a decision (Government Resolution No. 1605/2016 (8 Nov.)) for this plan (nearly approximately USD 38.5 million). According to the intention of the Government Decree, the renewal of the National Széchényi Library is implemented by the Governmental Information Technology Development Agency (Kormányzati Informatikai Fejlesztési Ügynökség/ KIFÜ) in consortium with the National Széchényi Library. The National Széchényi Library and the KIFÜ have set up a project for the implementation of an IT development plan for the stabilisation and development of the National Széchényi Library IT system (National Széchényi Library 2017).

The aim of the project is to renew the IT system of the National Széchényi Library, which includes the renewal of the IT support of current library-based processes; the launch of priority content service tasks; the expansion of the library's digitisation capacity; the upgrade of the infrastructure for the above developments and to support the day-to-day operation of the library; and the implementation of process organisation, service and organisation development tasks related to the above (Figure 1).

The duration of the project is from November 2016 until December 31, 2018. The Governmental Information Technology Development is responsible for the project management and the direction of project management. Its main areas of responsibility include the project's investments, developments and acquisitions. The National Széchényi Library is responsible for the professional management of the *National Library System Project* (Országos Könyvtári Rendszer/OKR project) and the smaller purchases.

Working groups are assisted by the IT Integration Forum (ITIF), which coordinates the IT related tasks of the workgroups, designates the IT integration directions and coordinates the development directions. In addition to the ITIF, operational support organisations help the project to support the professional work through their legal, financial, communication, human management and procurement experience.

The activities carried out under the OKR project will have a major impact on the National Széchényi Library's own development, but also the entire national library life.

The *Infrastructure Workgroup* is responsible for a very complex and significant investment. Its tasks include replacing the library's PCs, developing servers and applications, creating storage background and replacing and modernising the reader information system. In addition, the review of the IT security system is also included in its tasks.

The main task of the *Library Workgroup* is to replace the integrated library system of the national library with an integrated IT library platform that will substitute the existing MOKKA-ODR system in the long run and be able to connect multiple libraries.

Several subgroups were created within the Library Workgroup. These include, among others, the *Data and Application Consolidation Subgroup*, whose task is to consolidate the bibliographic and cataloguing data of the past 25 to 30 years, not only the catalogues operated in the integrated system but also the migration of the hundreds of databases of the National Széchényi Library, e. g. the aforementioned MEK and MOKKA; EPA (Elektronikus Periodka Archívum = Electronic Periodical Database); OSZKDK (Országos Széchényi Könyvtár Digitális Könyvtár = National Széchenyi Library Digital Library); and INDIGO (National Széchenyi Library's Digital Document Input Area) (Lendvay 2016). The task of the *User Authentication Subgroup* is to develop a state of the art user management that will ensure that users entering the National Széchényi Library and national system will have access to the required documents in accordance with their different rights.

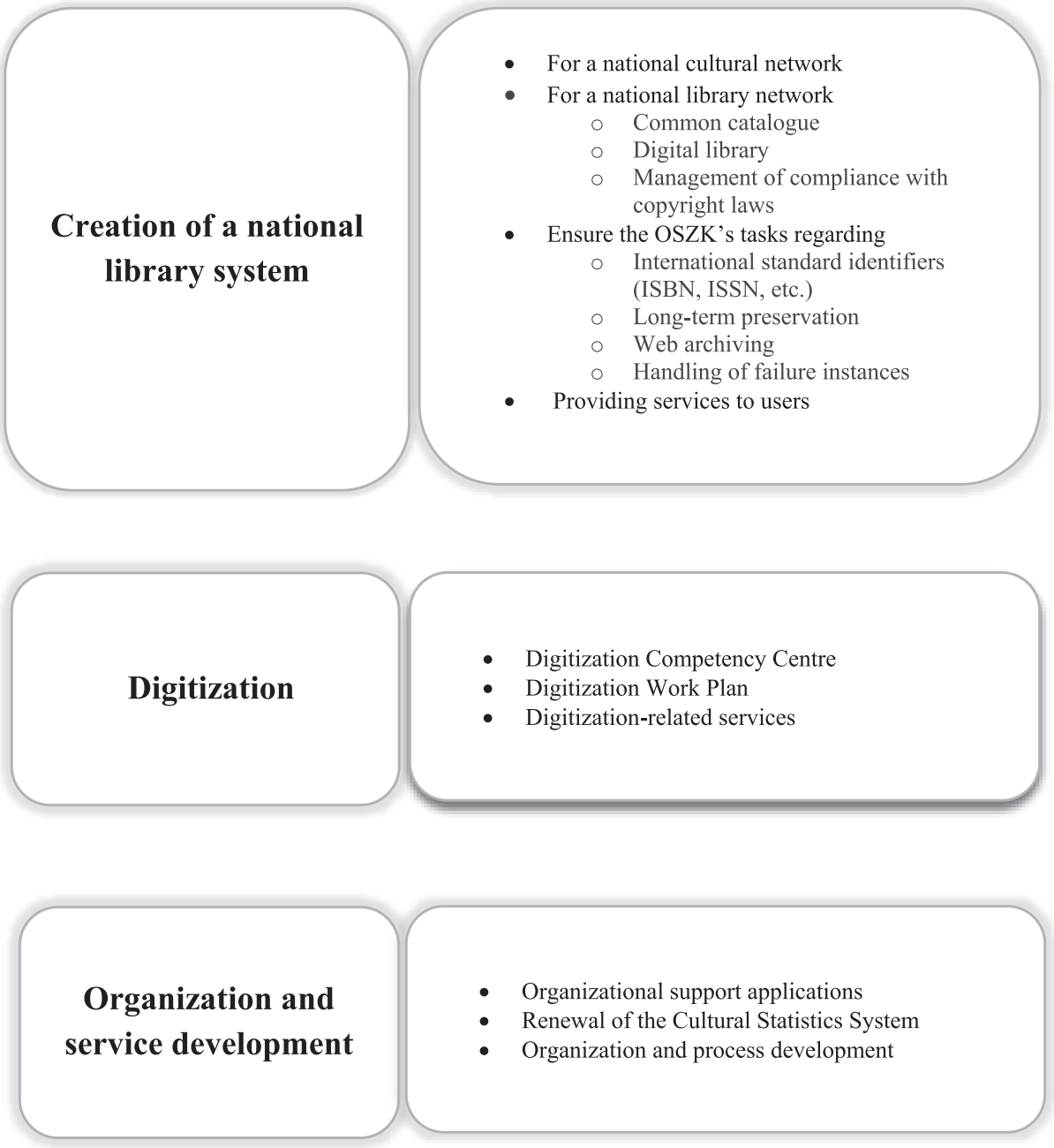

Figure 1: The professional scope of the National Library System Project.

Although the infrastructure of the long-term preservation is the task of the Infrastructure Workgroup, the structure of the long-term preservation of data should be developed by the Library Workgroup. Also included in this workgroup is the design of the Webharvest Pilot project's storage and server structure.

The creation of the Hungarian Internet Archive has been a professional requirement for many years. The task of the Library Workgroup is also the development and introduction of the new standard system. With the introduction of the new platform, the processing system will also be renewed. From the current HUNMARC format, the national directory will migrate to the MARC21 swap format. Renewal of the cataloguing standard system is also planned, which is a transition to RDA.

Implementation of FRBR-based publication and cataloguing of bibliographic data and the visualisation of the described entity relationships is desired in the

project; therefore, a system is planned that is able to handle both Linked Open Data and the BIBFRAME framework (RDF-based ontology). Since the other large area of the project is the creation of the Hungarian National Namespace, the new library system to be built must be in close contact with it.

The main task of the Digitisation Workgroup is to implement a digitisation centre, which will significantly expand the digital devices of the national library. Several scanners, page-turning scanners and multiple digital cameras are being purchased. The design of a modern camera workstation is also included in the project. The acquisition of multiple devices is required for the National Széchényi Library because of the wide variety of different documents which are in different conditions (such as codices, books, postcards, maps, mourning reports).

The Digitisation Centre to be established by the Digitising Workgroup will function as a national digitisation competence centre, which through its tools and in its professional knowledge facilitates the dissemination of digitally generated content digitised in the National Széchényi Library or digitally generated content delivered through the central system to all users who are connected to the national central system. In addition, the Digitisation Centre also supports digitisation with its know-how in other public collections of the country, thus facilitating centralised management and a more uniform service system.

The main task of the Organisation and Service Development Workgroup is to redesign the processes within the National Széchényi Library related to the results of the project, to prepare the necessary proposals for transformation and develop a new proposal for the organisational structure. In addition, it will create a new library and IT service concept and implement new IT security regulations, create and amend new policies as well as organise education as these new policies are introduced. Introduction of economic, statistical and cultural statistical support systems will also be included in the tasks of the workgroup (National Széchenyi Library 2017).

The OKR project allows the 200-year-old national library to cope with its multifaceted task of publishing centuries-old collections while simultaneously collecting and delivering digitally generated content, all in line with the very recent *National Digitization Strategy of Public Collections* (Közgyűjteményi Digitalizálási Stratégia 2017). According to the findings of the professional material, three percent of the 111 million documents stored in libraries, five percent of the 3.5 billion archive pages and 25 % of the 59 million museum items need to be digitised; between 2003 and 2015 the libraries managed to carry out 0.9 %, and archives and museums each carried out eight per cent of this workload. Changes to be implemented in the first phase of the strategy (until 2020) include: increase the digitised stock; enable existing and emerging content to be accessed on a common search platform (online search engine of public collections, National Repository Project – Nemzeti Adattár Projekt, NAP for short in Hungarian); and digital learning material growth. This change in perspective was necessary because those interested do not perform searches based on which institution owns the collection, but only consider the 'item' itself; it is of no importance which public collection digitised the document in question, the only relevant aspect is that it should be easily accessible through one single, common platform, which contains materials from libraries, museums, archives and film archives as well.

Goals for the second phase of the strategy (until 2025) include: the content provision of audiovisual archives becomes full; the web harvest service works. The so-called Digital Education Strategy (Digitális Oktatási Stratégia), which helps the public school system in the digital transition, also relies on the *National Digitization Strategy of Public Collections*.

The appearance of the National Digitization Strategy of Public Collections 2017–2025 (n.d.) was anticipated in professional circles. It was expected to remedy the problems mentioned earlier (SWOT-summary in Figure 2). There is a need for a strategic orientation, and a well-organised structured leadership that will comprehensively guide this area. The current practice of most institutions making decisions on digitisation individually should be changed; the other major shortcoming of the current system is that libraries often do not see each other's digital collections, so there are many duplications. Uncoordinated, fragmented digitisation results in unnecessary parallelisms. This situation is further complicated by the extreme diversity of the creation and contents of metadata. In such circumstances, users find it difficult to find the documents they are looking for. The fact that the financial support of digital libraries is mostly incidental also makes long-term planning difficult (very often only European Union catch-up aids or developmental projects are available for funding). The opportunities provided by the maintainer or grants are in many cases poorly allocated or misused. This is why the Hungarian librarian community welcomes the *National Digitization Strategy of Public Collections*, which will likely lead to a coherent reorganisation of the national library digitisation practices. Central management and funding is provided by Decree No. (1175/2018) (28 March) of the Hungarian Government on the Necessary Measures to Be Taken Between 2018 and 2021 for the Implementation of the Digitisation Strategy of

Library Digitisation	
Strengths	Weaknesses
• Firm legal background • Countrywide network of institutions • Mediating historical and scientific experience • Representing the cultural values of the nation • Wide range of documents • Supporting lifelong learning • Improving equal opportunities	• Lack of communication between institutions and thus internal operating problems, parallelisms in functioning and subsidising • Lack of strategic directions and connections with international trends • The single source of income is governmental budgetary support • Outdated equipment • Poor market expertise and difficulties in meeting extended office responsibilities • Unmanaged metadata
Opportunities	Threats
• Educational and cultural sectors coming together • Active involvement in the cultural life of local communities • Implementing joint research programmes • Interinstitutional cooperation • Continuing the modernisation of public collections • Increasing attendance of libraries	• Government policy • Appropriate staff supply • Completed developments are inoperable in the absence of maintenance conditions • Lack of a uniform clarification of copyright issues

Figure 2: Library digitisation in Hungary SWOT (made based on the *National Digitization Strategy of Public Collections (2017–2025*, 24–25)).

Public Collections. It should be noted, however, that the Association of Hungarian Librarians has already expressed concern about the implementation of the Digitisation Strategy Action Plan Tasks. In their view, "the assessment reports, action plans and the estimation of necessary resources ... can only serve as foundation generating efficient service, if the principles set out in the Strategy are implemented in full or in connection with additional resources" (Association of Hungarian Librarians 2018). In addition, the Association of Hungarian Librarians expressed a general concern of librarians when it stressed the need to provide the necessary modern equipment. Of course, financial priority is given to ensuring access to and the development of services, but in the long run this cannot delay the implementation of the necessary technical developments. It is also disappointing that the amount of funding allocated to the library sector in the *National Digitization Strategy of Public Collections* is substantially less than the sum provided to archives or museums (even combined with the amount allocated as part of the OKR Project for this task).

Despite these difficulties, however, we look forward to the future of the Hungarian library digitisation and believe that the ongoing investments and developments in the National Széchényi Library can partially remedy the general problems of library digitisation.

It is clear that digitisation workflows (collection development, processing, storage, long-term preservation, services) are a system of complex, interconnected processes, where the operation and purpose of the whole system are compromised in the event of any partial process failure.

Information Services for Science

In the Hungarian scholarly ecosystem, *Hungarian Science Bibliography* (Magyar Tudományos Művek Tára/MTMT) (https://www.mtmt.hu) has a constantly growing role. This national database contains data about scientific publications of Hungarian researchers and professors and their citations. Its operation has been regulated by one of the modifications of Act XL of (1994) on the Hungarian Academy of Sciences since 2015 (Act XL of 1994 on Hungarian Academy of Science). This regulation declares the Hungarian Science Bibliography as a national electronic public service and assigns the Library and Information Centre of the Hungarian Academy of Sciences as the database's operator. Within the Library, there is a specialised department that has been created to work with the tasks connected to the Hungarian Science Bibliography. The uploaded data are under the control of the central administration and of the colleagues of the member and associated institutions. The Hungarian Science Bibliography-related duties of Hungarian higher education institutions are declared in the Act on Higher Education (Act CCIV of 2011) and in the Decree on Doctoral Process (Decree No. 387/2012).

Akin to the publication and the citing information, as well as the journal ranking data available, the Hungarian Science Bibliography can calculate some important scientometric indicators for the authors, which could be useful in some qualifying processes, for example before giving a scientific degree. In addition, Hungarian Science Bibliography can provide institutional statistics as well, which is why the correct and up to date affiliation information is necessary.

Besides the *Hungarian Science Bibliography*, the Library and Information Centre of the Hungarian Academy of Sciences contributes to another national project: the *Electronic Information Services National Programme* (Elektronikus Információszolgáltatás Nemzeti Program/EISZ) (http://eisz.mtak.hu/index.php/en) (Decree No. 1079/2012). The project's goal – through purchasing national licenses – is to provide international databases for the Hungarian educational and research institutions and the libraries, museums and archives, as well as to help the institutions in the complex administration of database acquisitions (Dér and Lencsés 2017). For the initiative started in 2001, the Government of Hungary has granted around USD 5.5 million each year since 2011 (Act CLXXXVIII of 2011).

For the acquisition of the biggest and most famous (as well as most expensive) databases, the only available means since the 1990s is the consortium (Lencsés 2016), because of the discount subscription fees provided by the database providers. By following international examples, e. g. Finland (Giczi, Páll, and Téglási 2013), Hungary has also chosen this way, but the Hungarian national model is slightly different from international solutions. One of the differences is the heterogeneity of the contributing institutions. In most countries, subscribing consortia consist of similar organisations; in Hungary there are universities and high schools, public libraries, research institutes, archives, museums, health and state administration institutes (185 in total, according to the member registry in 2017). Another significant difference is that these consortia are usually made for the acquisition of only one database (Lencsés 2016). The EISZ National Program had around 20 acquisition issues five years ago and this number soon doubled: today there are 41 databases in the service

palette. These include products of well-known international providers, but there are Hungarian subscription-based collections too: the databases of Academy Publishing and the Arcanum Digital Repository. The latter contains almost 16 million pages of Hungarian journals' and newspapers' digitised volumes. The Arcanum is a Hungarian business, which digitised most of the Hungarian periodical collection over the past 20 years, taking advantage of the lack of cooperation between libraries. According to statistics in 2016 ScienceDirect is the most popular (1,716,115 downloads), followed by Springer Link (294,840) and JSTOR (195,158) (Electronic Information Services National Programme 2017).

In the EISZ Program, the member institutions – after receiving the same amount of government funds – pay down payment. In order to assign the amount of this payment, there are four methods in practice. The choice between them depends on the number of database subscribers, the type of the institutions and sometimes their size. Unfortunately, the down payments have been increased continuously, while government funds have not. Five years ago member institutions paid around USD 1.2 million for subscription fees, while by 2017 this amount has grown to USD 8.4 million. This is due to the increasing number of members (which has doubled in the past 5 years), the broadening of the offers and the rising of provider-defined fees. Fortunately, the institution maintainers recognise that the access to electronic information resources is a basic need of the researchers' work and the libraries' services. For higher education institutes the ministry grants a targeted support – only for database acquisitions. This process is also applied in the case of the research institutes of the Academy, and would be desirable in the area of Hungarian specialised libraries too.

In the future, the development of the COMPASS database (http://compass.mtak.hu) could be faster and stronger. This database gives a map of the Hungarian database subscriptions and makes them searchable.

It is a great pride to us that one of the most important milestones of *Open Access* history is connected to Hungary. In 2001, a general meeting of the Open Society Institute was held in Budapest, during which the definition of "open access" has been drawn up and basic regulations have been declared for the first time (Open Society Foundations 2014). The authors have emphasised that in favour of research and education, every single obstacle must be removed from the way of open access (Budapest Open Access Initiative 2002).

Although in the past 15 years many initiatives have been started in Hungary in connection with open access, our country has not built an integrated national strategy or regulation (Holl 2014). The Act on Higher Education only declares that the doctoral dissertations (and their preliminary research theses) must be accessible for everyone (Act CCIV of 2011).

The University and National Library of Debrecen University was the first to recognise the importance and significance of OA and started to promote it. Nowadays the Library is the National Open Access Desk of Hungary in the OpenAIRE Project, and also has a coordinating role in the HUNOR consortium (http://www.open-access.hu/hunor), established by the Hungarian higher education institutes and the Library and Information Centre of the Hungarian Academy of Sciences. The 24-member cooperation's goal is to build the national infrastructural network of the open access repositories, set up a methodological centre, implement international know-how and standards, build partnerships and implement complementary methods of scientific communication.

The Academy's Library and Information Centre represents Hungary in many international projects, e. g. the PASTEUR4OA, the pilot of the OpenAIRE2020 Gold OA and in the SIM4RDM. In the open access journals' repository (DOAJ), Hungary had 26 entries at the end of October 2017.

Publication numbers are constantly rising after a two-year period of regression. Last year 20 % of the articles were OA, and it is interesting to see the steep decrease in the number of the so-called 'green' publications in recent years. The number of OA publications is slowly increasing in proportion to the others (Dér 2018).

For research funding in Hungary, a well-known solution is available: The National Research, Development and Information Fund. Its mission is to facilitate the realisation of promising basic research projects. Representatives of the Fund have signed the Berlin Declaration in 2008 and dedicated themselves to the principles of OA (National Research, Development and Innovation Office 2014). Since then, the leaders of awarded projects have to publish research publications according to the OA principles, and a declared amount of funding has to be spent for Open Access. This step can easily be controlled via the records of the Hungarian Scientific Bibliography database and their external identifiers. In addition, the Hungarian Scientific Bibliography can provide help with the following issues:

– Protocol of the Repository Qualifying Committee prescribing the examination of the entries of international repository registers: do they contain the database to be qualified. At the time of writing this article, ROAR has 40, OpenDOAR has 36, OpenAIRE has 11 and DPR Celestial has 24 entries from Hungary.

- Through a special data transferring protocol (SWORD), Hungarian Scientific Bibliography can set up connections with the repository softwares and help the database administrators' work, because the records existing in the Hungarian Scientific Bibliography can be easily imported into the repository.
- With the aforementioned external identifiers, a full-version, open-access text can be attached to the bibliographic data of the Hungarian Scientific Bibliography, which is capable of declaring the exact type of the OA-parameters (gold, green, embargo etc.) The data can easily be queried through institutional and personal statistics.
- The Institute for Computer Science and Control, the developer of MyCite software, created a common search interface for the repositories with OAI-support; at the time of writing this article, there are 25 searchable collections on this platform (http://oaikereso.sztaki.hu). On the same page, half of the Open Journals System-based periodicals' (22 journals) contents are also available and researchable.

Multi-Purpose Cultural Cooperation

The *Hungaricana* database, Hungarian Cultural Heritage Portal (https://hungaricana.hu/en), came to life as an inter-institutional cooperation, with the joint effort of libraries, archives and museums, and it presents the results of digitising projects. Pieces of our cultural heritage – pictures (~ 400,000), texts (~ 10 million pages), historic maps and archive materials – are available for free on the website of the database. This is the model of a successful document service of aggregated public collections in Hungary today. A special driving force of content growth is that it is obligatory to publish here all the materials digitised with the support of the National Cultural Fund Programme, besides the institutions' own platforms. The service is run in cooperation with the Library of the Hungarian Parliament and the Budapest City Archives, and is implemented by the Arcanum.

The national electronic media providers' – radio and television stations – programme archive is the National Audiovisual Archive (Nemzeti Audiovizuális Archívum/NAVA) (https://nava.hu). Although its contents are searchable from everywhere, access to the full content is only granted at the so-called NAVA Points (schools, libraries etc.).

When it comes to cultural heritage, *Europeana* (https://www.europeana.eu/portal/en) must be mentioned. This digital library collects, aggregates and shares cultural heritage objects from all over the world, provided by member institutions, libraries, museums and archives. According to the Country Factsheet of Hungary, in the first weeks of 2018, there were around 810,000 records from Hungarian institutions. With this number, our country is middle-ranked – at around the fifteenth place – according to the faceted search data that can be accessed on the Europeana webpage. The first three countries (Netherlands, Norway and Germany) have around 5–5.5 million records each. There are 94 Hungarian data providers in total in Europeana; the most active of them is the aforementioned National Audiovisual Archive of Hungary with around 250,000 records. The second is the Open Society Archives at Central European University with around 107,000 records and the third is the Hungarian Theatre Museum and Institute (Országos Színháztörténeti Múzeum és Intézet). The National Széchényi Library has shared its Digital Archive of Pictures and its Hungarian Electronic Library with 40,000 and 31,000 records, respectively. The Factsheet mentions that 5.8 % of the content is open-license and interest in the Hungarian content is constantly dropping: 166 thousand views in 2015 and only 103 thousand in 2017 (Europeana 2018).

In the past, Hungarian data providers, such as Petőfi Literary Museum and the National Archives of Hungary, have been regularly involved in the projects of Europeana (Athena, AthenaPlus etc.). The OKR Project requires that the integrated library system, which is to be operated in the National Széchényi Library, could harvest metadata from other institutions automatically or semi-automatically and could forward them to Europeana which, together with the other contributing collections, can hopefully continue sharing the rich Hungarian cultural heritage.

Community Projects

Providing library services in the Hungarian countryside, in the small settlements – where one third of the country's population lives – has been a problem of the Hungarian librarianship for decades. The issue was in need of a solution even during the period of the Hungarian democratic transformation (in 1989) and has only become more and more pressing since then. Comparing national library statistics from the 1990s and the 2000s showed a clear growth in the number of library copies, registered readers and library visits, and in the amounts spent on collection building. However, these data did not truly depict the state of every library in Hungary; they only included the

successful operations of county and city libraries. In the small settlements, there was stagnation or even recession. These libraries were crowded because of small useable areas; their collection was deprecated, there were hardly any IT-devices if at all, while opening hours and the qualification of the staff were not suitable. The problem was solved only when – due to its emphasized significance – it had become part of the Strategy of the Librarianship for 2003–2007 (Richlich 2006). A workgroup was established to prepare a solution; this workgroup – after examining a few international examples: Austria, Slovenia, Netherlands, Finland, the UK and Denmark – planned a system called Service System for Library Supply. Until 2013, this system had two components: the provider libraries (county and city libraries) and the multi-purposed regional cooperation – small groups of adjacent settlements – who ordered the services of the providers for fee. A government regulation in 2004 added mobile library services to the list of purposes of cooperation, with the funds available through tenders (Ramháb 2007). At the beginning of the next year another financial source – national subsidy – was added.

In the first half of the 2010s, considerable changes were implemented in the public administration. The significance of regions was decreased and they were ceased in 2013. This is the reason why the act regulating library services in Hungary needed to be modified several times (most recently in July 2017). The applicable law declares that the library service of small settlements – when the settlement has no self-maintained public library – can be provided by using the services of the county library (city library with county-level scope). The council of the settlement makes an arrangement with the provider library (for limited or unlimited time), in the framework of which the council operates a place called Library, Information Service and Community Place (Act CXL of 1997).

In certain small settlements, library services are provided with an up to date library bus that works according to a pre-defined timetable. Based on the statistics of last year, five library buses are available (National Széchényi Library 2016).

In addition to the recent progress in library services, the development of a knowledge-based economy in the field of cultural and public institutions has also started in Hungary. The objective of the *Active Communities – Community Action Initiative* (2017) is to increase social activity; strengthen the community's role in the municipalities involved in the development; strengthen the relations between local governments, cultural institutions and residents; and raise the level of cooperation. The project (total EU-support: approximately USD 11.5 million) is implemented by a consortium consisting of three disciplines and a methodological leadership, headed by the Centre for Museum Education and Methodology at the Open Air Ethnographic Museum as well as members of the National Institute for Culture Cultural Institute Nonprofit Public Benefit Ltd., and the National Széchényi Library

Here we mention the strategic plan of Hungary's largest and Europe's third largest public library, the Metropolitan Ervin Szabó Library (Fővárosi Szabó Ervin Könyvtár), for the period 2014–2020, with the motto 'Inform, integrate, inspire', in which a clear strategic goal is indicated:

> The 21st century library is no longer a culture and value mediation institution, it is a community place where people are reading, learning, having fun, talking, and a place for creativity where people are the creators: the information is used to produce new content and express their own imagination. Thus, the library is the scene for lifelong learning and social relationships, but also represents an inspirational site for (self) expression, development, and cooperation. (Metropolitan Ervin Szabó Library 2014)

The aim of the *Museum and Library Development for Everyone Project* is managed by the Museum Education and Methodology Centre, Hungarian Open Air Museum, in consortium partnership with the Metropolitan Szabó Ervin Library (part of the My Library project). Running from 2017 to 2020 (total EU-support: approximately USD 7.7 million), it is "the methodological development of museum and library professionals regarding their work with younger generations and teachers at public education institutions, and also through sensitization of teacher trainees, so that they can contribute to dealing with new social and economic challenges" (Hungarian Open Air Museum 2017).

LIS Training in the Digital Age

In Hungary, the university level training of librarians started in 1949, in the capital, at the Faculty of Humanities of Eötvös Loránd University. It has been a continuous, uninterrupted and successful programme ever since. Slightly more than a decade after its foundation, in 1958, the first doctoral examination in the field of library science took place here. Currently librarian training are available at the University of Debrecen, Eötvös Loránd University, Eszterházy Károly University, the University of Pécs and the University of Szeged, providing both bachelor's and master's programmes as well as librarian teacher training (a doctoral (PhD) degree can

only be awarded at Eötvös Loránd University). For the academic year 2017/2018 135 bachelor's and 38 master's students were accepted in the country.

The largest and oldest institution is the Institute of Library and Information Science at Eötvös Loránd University, where more than half of applicants study and which has the highest number of lecturers. Since 1997 the Institute has awarded nearly 50 doctoral (PhD) degrees to the best experts of the field. It also has 20 ERASMUS connections (Sebestyén 2001; Kiszl 2015b).

Hungarian higher education transitioned to the three-cycle system (BA, MA, PhD) of the *Bologna declaration* in 2006, while also taking the EUCLID's recommendations into consideration (Kajberg and Lørring 2005). The list of specialisations offered, supplementing the core courses, is always a good indicator of the changes in professional trends at any given time. In 2004, during the planning of new curricula, the direction shifted towards practical orientation and interdisciplinarity, while information technology and library development also proved to be increasingly important. Based on this perspective, a large number of BA specialisations were offered in 2006: electronic and digital library; European Union librarian – EU information; children's library; information management – information and knowledge management – information broker; pedagogy of information literacy; school library; publishing studies – press media and book publishing; book history; public library; special collections; content provision; web publisher – web programmer – webpage editor. MA specialisations offered at the same time in 2006 were: human information technology; information and knowledge management; research and development information manager; mediamatics; processing old printed material; content development manager; business information manager (Kiszl 2010, 5). The list of specialisations has become clear-cut since then, partially due to institutional integrations and the decrease in the number of educational establishments and students, but also because of employment market conditions. Compared to 2006, there are considerably fewer specialisations offered today. All the available modules can be sorted into three categories: (1) history, (2) information provision and information technology and (3) management. In 2018, the specialisations belonging to groups (2) and (3) were the most popular, meaning that those attracted the most students. It cannot be disregarded that a constantly increasing number of students choose teacher training instead of disciplinary (BA and MA) programmes. The primary reasons for this are probably the lack of a librarian career model and teachers' salaries being higher than those of librarians.

IT-oriented competence development and digital library-related studies were incorporated into institutions' course lists from the late 1980s as well as early 1990s – as far as the circumstances allowed at the time – and, by the start of the new millennium, they fully adapted to international expectations and national characteristics. Koltay and Boda (2008) defined and identified 15 digital library elements in Hungarian librarian training: collection development; historical studies; information retrieval and information seeking; information technology; metadata; interoperability; interface design; legal issues; electronic publishing, scholarly communication; digitisation; preservation; reference services; the digital librarian; information literacy; and research. A comprehensive, Europe-wide study in 2011 (Audunson and Shuva 2016) also confirmed the EU conformity of the Hungarian educational structure in the field of digital libraries. The same can be said about the conclusions of the EU Digital Library Curriculum Project's experts (Pomerantz et al. 2009), who suggest that Hungarian universities are not lagging behind regarding their curricula. In certain cases, it is not the lack of professional expertise that causes problems, but getting funding for appropriate hardware and software infrastructure, or the outdated state of these. It creates a paradox that Budapest, which attracts the highest number of students, as part of Central Hungary, usually cannot apply for EU funds due to the region's high GDP indicator. European developments are mostly awarded to rural educational institutions, where the number of students is significantly lower. It is a positive change that the opportunities for the international exchange of experience and cooperation have expanded, and Hungarian teachers and researchers now have full access to foreign academic literature, thus removing another obstacle to continuous modernisation.

In the newest curricular reform – the result of lengthy professional negotiations, in effect since 2017 – the Hungarian Government established the mandatory fields of study for every educational institution: BA programme (180 credits, 6 semesters): social sciences and humanities 15–25 credits; library studies and information management 30–40 credits; management studies 5–20 credits; information technology 15–25 credits; communication studies 5–20 credits; and optional specialisation 35–50 credits. MA programme (120 credits, 4 semesters): social sciences and humanities 5–15 credits; content management, knowledge management 10–25 credits; scientometrics, research support 5–15 credits; business and management studies, organisation development 5–15 credits; technical terminology 4–10 credits; and optional, specialised professional knowledge 35–50 credits (Kiszl

2017a, 35–36). The way these are implemented in courses and the everyday practices of educational institutions are dominated by an IT-oriented approach and a digital library-focused perspective. The following list includes a few examples for these from the current curriculum of Eötvös Loránd University, with mandatory courses of the BA programme including: web editing; network studies; network communication; database building; integrated library systems; development of digital collections; and academic literature databases. Mandatory courses of the MA programme include: bibliographic description, metadata systems; classification, knowledge representation; academic reference service, knowledge bases; library databases, network-based information services; electronic documents, digitisation; content provision and social media; and content provision and multimedia.

The relationship between digital humanities and librarian training has always been intense. This is clearly demonstrated by the results and projects of the Content Development Working Group (CDWG) of Eötvös Loránd University, detailed in Fodor and Kiszl's study (2018), which also introduces the related multi-level, sequential model of web competence development:

- One-off, informative web publications: web projects promoting events and projects.
- Smaller archive projects: displaying smaller parts of an archive on an independent web platform. Creating a format, structure and navigation customised to the characteristics of the given collection. Microsites, virtual exhibitions, informative web publications.
- Digitising individual documents of a collection: web publication of standalone documents that can be concluded on their own; creating content producing added value with secondary information, key words and the expansion of the metadatabase.
- Research project sites: websites displaying constant updates and summarised conclusions of simultaneous research projects on several topics and by several authors.
- Collaborative, community-developed knowledge bases: collections serving as a platform and also encouraging community development.
- Web magazines and blog networks providing scientific and cultural information: regularly updated publications by several authors (Fodor and Kiszl 2018, 7).

In 2017, the Centre for Digital Humanities was founded within the framework of the Institute of Library and Information Science of Eötvös Loránd University, with government support (Fodor and Kiszl 2018, 20–23). In 2018 we will host the first international, multi-day digital humanities conference of the region, in cooperation with the Digital Research Infrastructure for the Arts and Humanities (DARIAH), the Common Language Resources and Technology Infrastructure (CLARIN) and the Michael Culture Association.

Due to demographic reasons, a significant number of colleagues at libraries have already retired in Hungary. The institutions mentioned above, awarding university degrees, have an essential role in providing replacements for them and, together with other institutions and the Library Institute of the National Széchényi Library, offer assistant librarian and other courses, since the librarianship of the future begins with education.

Conclusion

The beginning of the digital era seemed promising for Hungarian libraries, but the fragmented library system, lack of a national strategy or the weak implementation thereof, fragmentation of resources and a multi-decade long delay of consolidating the national library's status, made it impossible for adequate services, which meet the expectations of the twenty-first century, to be set up by the new millennium, or even by now. An overview of the libraries' digitising activities can serve as proof: alienated, wasteful, independent services were launched without any form of cooperation and often terminated due to budget-related, professional or institutional (organisational) reasons. The ad hoc, tender-based developments, which mostly provided only temporary financial background, the lack of a national digitised registry and the diversity of formats and systems hindered continuous growth, which was exploited by a business in the field of journal digitisation, with this company now making its collection available for profit.

The Digitisation Strategy for Public Collections, which aims to improve the position of libraries, archives and museums collectively, prioritises the users' interests and wishes to create a uniform national database and search engine (NAP), together with the OKR Project of the National Széchényi Library, to provide new avenues for Hungarian libraries by digitising the national library's collection and implementing a uniform, integrated library system created for national use. The dissemination of academic content is carried out by the Electronic Information Services National Programme and the Hungarian Science Bibliography (both managed by the Library and Information Centre of the Hungarian Academy of Sciences). The community development

within the public library system, aimed at the users, is concentrated in two nationwide programmes (projects Active Communities and My Library).

There is no doubt regarding the adaptability and international cooperation skills of Hungary's higher education librarian training. After the successful adaptation of the Bologna process and the institutional integrations, the true challenge is to increase the number of students applying and keeping graduates in this field; that is, to improve the prestige of the librarian profession. The importance of this rivals that of IT development and the success of big projects, because, as we know, the future of our profession mainly depends on the human element: the future generation of librarians.

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