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Institutional Repositories in the Czech Republic

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Author Note

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Abstract

This research project examines the use of institutional repositories (IRs) by academic and research institutions in the Czech Republic. Six Czech institutional repositories are examined in context with the open access (OA) movement in the US and Europe in order to identify what goals have been achieved, what challenges lie ahead, and how the IR functions within the academic ecosystem. IR development in the Czech Republic has been driven by a government statute to provide electronic access to theses and dissertations (ETDs), yet five out of the six IRs hold more content than ETDs alone. Despite not being totally OA, the IRs are trending towards holding grey literature and data sets in addition to pre- and post- prints of journal articles, University publications, and monographs. The majority of the institutions exhibit openness by having signed the Berlin Declaration and/or possessing an OA policy/mandate, and the European Commission's H2020 program is a hopeful guiding light to Czech OA policy alignment and IR administration. The IRs discussed have been successful and the institutions look forward to pushing for wider OA acceptance within their organizations despite researcher opposition. The institutions can promote the meaningfulness of their IRs to researchers through Czech-EU OA policy alignment and using outreach endeavors to incentivize the use of the IR.

Keywords: institutional repositories, IR, open access, OA, the Czech Republic, academic and research libraries, digital libraries, electronic theses and dissertations, ETDs

Institutional Repositories in the Czech Republic

It has been said that generosity comes to those who need it most. The open access (OA) movement and its corollary, institutional repositories (IR), bring a type of generosity to the Czech Republic that is revolutionary for a country that emerged from Communist censorship less than 30 years ago. However, most proponents view OA as a fairness issue rather than benevolent generosity. The OA philosophy holds that intellectual work should be freely available to access and use fairly. It prioritizes expediting the delivery of new information in pursuit of facilitating the creation of new knowledge, which is at the heart of the EU OA initiatives that now affect the Czech Republic. Institutional repositories, subject repositories, national repositories, and research repositories came to being as a direct manifestation of OA principles.

In the most literal sense, institutional repositories are online databases that contain the scholarly output of an institution, usually an institution of higher education. In their very mission, they transform the role of libraries by transferring the locus of scholarly communication away from exorbitant subscription rates and content embargoes, giving libraries the opportunity to solve the crisis in scholarly publishing.

The IR movement entered the widespread academic conversation with the Budapest Open Access Initiative of 2002 and the Berlin Declaration in 2003, melding a philosophical approach of fairness with the rise of the internet and access to technological tools like open source software, affordable storage hardware, and the trend of digital libraries. IRs showcase an institution's scholarly output, hosting and indexing electronic theses and dissertations (ETDs), pre- or post-print journal articles (called the green road of OA), university publications, and other products and byproducts of scholarly activity. Add the librarian's dedication to preservation and access to the equation, and an OA IR possesses the potential to serve free scholarly output that

follows the institution's deposit guidelines, and this output is often available much more quickly than traditional publishing avenues. These materials collected as a corpus can meet institution collection and access policies as well as internal and external assessment and strategic planning objectives (Armbruster & Romary, 2009). IRs can serve many purposes, and are evolving to fill new roles.

While institutional repositories came to being in the United States, conceived first at the 1999 Santa Fe Convention and later given teeth with the development of the ePrints and DSpace platforms in 2000 and 2002, respectively (Tananbaum, 2013), European academic institutions have closely followed the US IR trends. The Czech Republic, principally located between Berlin and Budapest, is not a leader in OA initiatives and establishing IRs, but is certainly investing in the ethical act and practical benefits: according to OpenDOAR.org, there are sixteen OA repositories in the Czech Republic as of September 16, 2016. Establishing IRs and using them to further the OA philosophy is appropriate for a country that has been very concerned with the free flow of information due to the extreme censorship that was enforced under Communism; in the post-communist era, the "censorship actually practiced… dealt [with] concerned publishers' discussions and decisions about what materials should or should not be published" (Kalkus, 2009, p. 102). As librarianship in the Czech Republic developed throughout the 1990s and early 2000s into a field that surpassed being "keepers of the books" and into a profession that likewise managed budgets and formulated strategic plans, librarians moved to stake a claim in the world of publishing.

Background

Since the idea of the institutional repository was born in the early aughts, countless books, anthologies, studies, articles, papers, presentations, and conferences have taken place to

discuss every aspect of the IR, from the theoretical to the technical to the critical. In 2006, when

IRs were reaching a critical mass of adoption, The Association of Research Libraries (ARL)

released a SPEC Kit devoted to the topic that surveyed eighty-seven American libraries about

their IR implementation (Bailey, et al.). This publication included representative documents on

IR home pages, usage statistics, deposit policies, deposit agreements, metadata policies, digital

preservation policies, IR proposals, and IR promotion as well as resources on platforms. The

same year, Rydberg connected IRs to the larger movement of digital libraries, a term many

Czech institutions of higher education use to describe their IRs. Nabe's how-to IR manual was

published in 2010, and in 2013 Buehler tapped into the disillusionment many IR strategists

began to experience, addressing some institutions' IR reluctance after receiving reports of under-

performance and difficulty cultivating participation from colleagues.

　　Instruction for administrators of IRs continues to the present day, suggesting an IR

resurgence is accompanying the next wave of OA advocacy. Callicott, Scherer, and Wesolek

(2016) offer advice on choosing a platform, setting policies in line with OA, recruiting and

creating content by promoting the archival and publishing aspects of IRs, and developing useful

metrics. The editors round out the book with four chapters of case studies and a reflection on

future promises of IRs. Despite the need to renew the conversation about establishing successful

IRs, the editors proclaim that, "While repository initiatives have had to fight an uphill battle,

widespread adoption and use indicates that they are here to stay and will have an impact on the

evolution of scholarly communication" (Callicott, Scherer, & Wesolek, 2016, p. xvii).

　　It is impossible to talk about institutional repositories without talking about open access

although many IRs are not truly open access. Peter Suber, Director of the Harvard Open Access

Project and leader of OA mandate compliance, writes about the common ground of the Budapest

Initiative, the Bethesda Statement, and the Berlin Declaration—what he calls the "BBB definition"—which removes price barriers and permission barriers (2004, n.p.). He points out the Budapest Initiative's definition, which says, "By 'open access' to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose" ("Budapest," 2002, n.p.). Suber goes on to say, "OA repositories provide OA by default to their content" (2015, n.p.). Many electronic theses and dissertations (ETD) institutional repositories in the United States and Europe, including the Czech Republic, require users to log in or be on campus to access the full text and are therefore *not* OA, but are nonetheless bound up in the OA conversation. Envisioning a Venn diagram of OA repositories and ETD repositories in the Czech Republic would show a significant, although not majority, overlap between the two.

This is caused, at least in part, by the 2005 Higher Education Act, a Czech law that requires academic institutions to make student theses and dissertations available electronically, yet does not specify access policies or technological standards (Fabián, 2013, p. 218). The other factor is the lack of an "official government policy or mandate to deposit research output arising from grants," as well as a lack of a depositing mandate from public funding sources for scholarly publications in the Czech Republic (OpenAIRE, 2016, n.p.), which has negatively impacted the country's ability to align and push OA policy forward on a national level, whether for ETDs or other research formats. Nonetheless, most Czech institutional repositories keep the fundamental spirit of OA at the center of their collection policy regardless of government mandates that don't go far enough, limits of staff power to perform retrospective ETD processing, and students that

exercise their author rights by choosing to block off-campus access to their theses and dissertations.

Meanwhile, the European Union has shown considerable activity around OA in establishing overarching policies. The European Commission launched Horizon 2020 (H2020) in 2012, calling for all publicly funded scientific research to be OA by 2020, in order to "enhance Europe's economic performance and improve the capacity to compete through knowledge" (OpenAIRE, 2015, n.p.). The H2020 guidelines prescribe the use of "a repository for scientific publications," and recommends using OpenAIRE, which networks OA subject and institutional repositories for interoperability and better item discoverability, as the main entry point for selecting a repository (European Commission, 2016, p. 6). Also supporting the European OA movement is PASTEUR4OA, which holds OA policy alignment amongst EU member states as its main objective. In the U.K., JISC is a partner in the SHERPA/RoMEO project, a database that assists in identifying publisher copyright provisions, and generally leads EU member states because "institutions and funders in the UK have been in the vanguard of Europe's OA movement" (Picarra, 2015, p. 9) and are therefore in a good position to share their toolkits, best practices, and OA leadership skills. Similar to JISC but operating on a transnational EU scale is SPARC Europe, which is a membership network that supports OA policy development, influences cultural beliefs about openness, and produces "[a]dvocacy, guidance, and tool and service development also in support of the implementation and monitoring of Open policies" (SPARC Europe, 2016, n.p.).

What has the journey been like for the Czech Republic? As far back as 2008, Rosenblum compared OA listing figures by country from OAIster and ROAR, identifying a slow adoption of repositories in the Czech Republic. The Czech and Slovak Library Information Network

(CASLIN) 2009 proceedings report on topics like embedding a tool to generate citations from repository records (Skolková & Nič); ETD repositories not being truly open access, library staffing levels being low and directed away from scholarly communication (Tkačícová); the need to better consider the user's role in proving the usefulness of an IR (Štogr); connecting OA to the idea of the library as publisher (Lhoták & Chýla); performing retrospective digitization of mathematic articles and ingesting them into a repository (Sojka); long-term preservation solutions for IRs (Fojtů); developing an ETD national repository called theses.cz and a grey literature national repository called nusl.stk.cz (Horová & Mach); and providing a case study of the IR at the University of Pardubice (Prochásková & Vyčítalová). Even seven years ago, Czech IR administrators were dealing with the nuts and bolts aspects of running an IR.

Differentiating between the green road of open access (post-prints or pre-prints archived in the IR) and the gold road (publishing in open access journals), Fabián's (2013) landmark article focuses primarily on gold OA in the Czech Republic. He uses data from DOAJ, JCR, and Scopus to make a complete picture of open access journal publishing, but reinforces the view that except for the two IR leaders (the Academy of Sciences and Masaryk University), "the initiative for open access support comes mostly from [Universities'] respective libraries" (p. 215), indicating that OA is not popular amongst faculty and scholars. Fabián further states that the Czech Republic is not a leader in subject-based repositories nor institutional repositories, but uses both as examples of green open access being able to further the OA movement.

In addition to pre-print or post-print journal articles being made open access via the green road, repository development in the Czech Republic has recently seen growth in the grey literature segment. The special winter issue of *The Grey Journal* (2016) published several case studies on developing institutional repositories to archive the by-products of the research

process, like field notes, raw data sets, and measurements: Budínský writes about Tomas Bata University in Zlín's IR transforming from an ETD repository to a repository capable of storing and indexing grey literature; Caletka writes about the planned improvements to the Parliamentary Institute's repository of nuclear science and technology; Francová and Krueger discuss the challenges of providing access to biomedical engineering research data in repositories. These expansions of content type herald the next generation of IRs, where Czech institutional repository administrators move beyond a trend-following gesture of IR establishment and into a new realm of collection development. Content at the focus of grey literature IR collection development makes it possible for other researchers to remix or reanalyze previously collected data and does not risk duplicating the efforts of the golden open access road (i.e. publishing in OA journals). It is a new, unprecedented move in the application of IRs.

Little has been written in English recently on the progress of Czech IRs, how Czech IRs fit into the other activities of academic institutions and libraries, and what OA strategic initiatives are on the agenda. In the lack of a comprehensive survey on Czech IRs and the lack of updates on OA in the past three years, this research project seeks to gain an understanding of recent developments in IRs in the Czech Republic, and look to the future of IRs in context with the OA movement. In other words, what has the green road of open access presented to Czech librarians, and what's up ahead?

Current State of Open Access and Institutional Repositories in the Czech Republic

This paper discusses the current state and future opportunities of Czech IRs by way of examining six specific Czech IRs: University Library, West Bohemia University in Pilsen; Library of the Czech Academy of Sciences; University Library, University of Pardubice; University Library, Czech University of Life Sciences in Prague; Central Library, Charles

University; and University Library, Tomas Bata University in Zlín. This information was culled

from online OA directories and OA advocacy Web sites (e.g. OpenDOAR, ROARMAP, and

OpenAIRE); Web sites of the individual Czech IRs; and through eliciting input from Czech IR

administrators via personal correspondence. These Czech IR administrators are: Miroslava

Pourová (University Library, West Bohemia University in Pilsen), Iva Burešová (Library of the

Czech Academy of Sciences), Lucie Melicharova (University Library, University of Pardubice),

Hana Landová (University Library, Czech University of Life Sciences in Prague), Andrea

Miranda (Central Library, Charles University), and Ivan Masár (University Library, Tomas Bata

University in Zlín). Because the aim of this paper is to gather information about IR systems,

policies, and applications in the context of the organization rather than staff attitudes and

feelings, the information is identified by institution rather than by staff person.

Length of IR Operation

        Out of the six institutional repositories examined for this research project, the University

of Pardubice and Charles University are the trailblazers, as their repositories have been in

existence for 9-10 years. Following that, Tomas Bata University in Zlín and the Czech Academy

of Sciences have had repositories for 5-6 years; West Bohemia University in Pilsen and the

Czech University of Life Sciences in Prague have had repositories for 3-4 years. None of the

institutions have very new repositories, and the oldest repositories were launched following the

peak of IR adoption in the US in comparison to the institutions surveyed in the 2006 ARL SPEC

Kit (Bailey et al.). This suggests that the Czech Republic may have been sluggish in initially

joining the IR trend and that all universities who have IR-eligible materials have already

launched their respective repositories. New IR growth is slowing.

Content & Collections

In regard to the type of content held in each IR, it is not surprising that all six repositories contain theses and when applicable, dissertations, considering the Higher Education Act and the foundations of IR collection development theory. All six repositories except the Czech University of Life Sciences in Prague, which is solely an ETD repository, contain journal articles, books, and book chapters. The remaining five IRs contain several other types of materials, confirming the documented trend in adding grey literature, data sets, and non-text works. West Bohemia University in Pilsen places monographs published by the University into the IR, along with "scientific works, journals, anthologies, and monograph[s]," which is an example of the library staking a claim within the university press publishing model (M. Pourová, personal communication, June 16, 2016). Tomas Bata University in Zlín calls its repository "TBU Publications," implicating the act of publishing in the enactment of a repository, although many of its holdings are pre- or post-prints of journal articles published elsewhere and archived per the Rector's Decree of 10/2015, and the ETD repository is housed separately (2016, n.p.). The repository of Charles University contains digitized manuscripts, maps, and historic documents (A. Miranda, personal communication, July 20, 2016), content that is apt for a broader readership via aggregation in internationally cooperative digital libraries like Manuscriptorium.com and Europeana.eu.

Usage Statistics

According to the author's correspondence with the IR administrators, all six repositories generate usage statistics for analysis, but do so in different ways, and the ability to provide publicly available usage statistics seems to be connected to what type of platform is used for the IR. It can be determined that four of the six offer publicly available download statistics following

consultation with the Web site of each repository, and the three that offer the most robust statistics use the platform DSpace: Tomas Bata University in Zlín, the University of West Bohemia Digital Library, and the University of Pardubice. This implies that the DSpace platform is the most customizable and useful in comparison with the other platforms used (Advanced Rapid Library and Ex Libris Digitool), which is not surprising considering the active DSpace user group in the Czech Republic.

Tomas Bata University in Zlín offers item-level usage statistics via a PlumX plug-in (abstract views, downloads, and citation software captures). The University of West Bohemia Digital Library and the University of Pardubice offer statistics at the repository level, collection level, and item level; the latter also provides Google Analytics statistics to identify the location of visitor traffic and statistics demonstrating the most used search terms in the repository. The repository of the Academy of Sciences offers statistics on total downloads at the item level for records that contain full text, but not abstract views or overall usage. The Czech University of Life Sciences in Prague relies on the IT Department to generate usage stats, and the theses repository "is being used very intensively" (H. Landová, personal communication, June 21, 2016). In terms of usage, the ETD repository collection of Charles University is utilized the most, along with the Map Collection (A. Miranda, personal communication, July 20, 2016), but the IR does not appear to offer usage statistics through the public interface.

The fact that all surveyed administrators have access to usage statistics is a healthy sign. In general usage metrics are valuable for institutional assessment endeavors and for bolstering funding arguments, thus proving to be integral for internal and external evaluation (Bruns & Inefuku, 2016). The repositories that provide publicly accessible usage statistics contribute to the social aspects of IRs and allow authors to gauge the impact of their work (which in turn

generates positive word-of-mouth recommendations), and users can likewise pursue items that have been more popular with other researchers. The Czech University of Life Sciences in Prague and Charles University could benefit their users by implementing tools that publicly provide usage statistics.

Librarian Role and Information Literacy

Examining the role of staff—specifically librarians—in the success of the IR provides interesting insight into an institution's organizational structure. Administration of IRs in the US and in the Czech Republic is usually located within the locus of the library, and this study shows no differently, with the exception being the Czech University of Life Sciences in Prague, whose IT department manages the repository. Of the remaining IR administrators consulted, four identify as a librarian (M. Pourová, personal communication, June 16, 2016; I. Burešová, personal communication, June 20, 2016; L. Melicharova, personal communication, June 20, 2016; A. Miranda, personal communication, July 20, 2016), and two of those indicated receiving special training in IT infrastructure (M. Pourová, personal communication, June 16, 2016; A. Miranda, personal communication, July 20, 2016). Only the IR administrator from Tomas Bata University in Zlín identifies as an IT staff person employed by the library (I. Masár, personal communication, July 20, 2016). These results are encouraging as they demonstrate the increase in expertise overlap between librarians and IT workers—whether or not it is administered by the Library, the IR is still central to many aspects of the academic library's mission, and reinforces the library's strategic advantage of facilitating access to information.

Yet when examining how the IR meets the goals of the library, differentiation between IR administrators and other IR stakeholders within the library organization is important—it is one thing to tend to the technological system of the IR, and it is another thing to use the IR in

information literacy education, to solicit content for the IR through outreach, and to enforce OA

policies through the mechanism of the IR. Three of the included libraries self-identify as using

the IR in information literacy education: Tomas Bata University in Zlín "introduce[s] the

repository and its advantages to authors," (I. Masár, personal communication, July 20, 2016);

Czech University of Life Sciences in Prague "inform[s] students about the repository as one of

the information resources" (H. Landová, personal communication, June 21, 2016); the University

of Pardubice "present[s] the repository as a source of university theses and research outputs

(lessons for first-year students)," (L. Melicharova, personal communication, June 20, 2016).

Meanwhile, the University Library of the West Bohemia University in Pilsen does explain what

can be found in the repository to faculty and students, but doesn't go as far as to describe this as

information literacy education (M. Pourová, personal communication, June 16, 2016).

As Stone and Lowe (2014) point out, IRs have become integrated into the academic

process and have therefore inherently introduced information literacy skills to undergraduate

students. Because of the increase in freely available undergraduate theses made possible by IRs

and the corresponding increase in citations of undergraduate works, instruction librarians become

responsible for "reaching seniors well before they deposit their theses" and need to bring up the

larger conversation of open access that summons "citation, attribution, and permission issues"

(Stone & Lowe, 2014, p. 256). Librarians at the Czech University of Life Sciences in Prague do

outreach around all aspects of the IR, and include a unit on the IR in the course they give

doctoral students (H. Landová, personal communication, June 21, 2016). Clearly, all the Czech

institutions consulted for this research project that educate students use the IR as part of

information literacy education—the students must interact with the repository by default when

submitting their thesis or dissertation in order to earn their degree.

Faculty and Researcher OA Attitudes

Unlike students who are required to deposit their work to achieve the goal of graduation, institution faculty and researchers do not have an instrumental need for the IR. Even considering institutional deposit mandates, researchers and faculty necessitate an incentive to deposit their work in an IR, whether it be a bonus from the University, a boost to their reputation, or simple usefulness when building a CV. Only in the case of a requirement set by an external research funding agency are authors required to submit published work to an OA repository, and the decision to use an IR to meet that goal happens separately from an institutional mandate. Several of the IR administrators consulted for this research project indicated opposition to OA requirements from faculty and researchers and their respective institutions. The West Bohemia University in Pilsen notes that their scientists don't want their work published in the OA regime (M. Pourová, personal communication, June 16, 2016); the University of Pardubice politely states, "we have a lot [of] work ahead because not everybody is a fan of OA," (L. Melicharova, personal communication, June 20, 2016); OA is not well understood at the Czech University of Life Sciences in Prague because it is connected with the issue of predatory journals posing as OA venues (H. Landová, personal communication, June 21, 2016).

One way librarians can take pressure off of faculty and researchers and evangelize for OA is by vetting publisher contracts to make way for the green road of OA. The University Library at West Bohemia University in Pilsen is active in brokering publisher contracts for OA compliance, using the publisher policy tool SHERPA/RoMEO and implementing SHERPA into their publication repository, all of which help evaluate science and research (M. Pourová, personal communication, June 16, 2016). The librarians of the Czech Academy of Sciences simply keep their authors informed of OA and IR issues (I. Burešová, personal communication,

June 20, 2016), and Charles University considers librarians to be the main contact for soliciting content for the IR and vetting publisher contracts for an OA version of a journal article (A. Miranda, personal communication, July 20, 2016). Librarians at Tomas Bata University in Zlín do not currently advise authors on publisher contracts but have the "goal to participate more in the pre-publication phase - we already provide a lot of resources for authors in that area," (I. Masár, personal communication, July 20, 2016). The University of Pardubice leaves it up to authors to find out from publishers if an OA version of the article can be obtained (L. Melicharova, personal communication, June 20, 2016). Faculty and researchers are more likely to deposit their work in an IR if there is a library contact designated to walk them through the process, otherwise they resort to commercial solutions, like Academia.edu and Researchgate.com.

Outreach within the institution and OA assistance tailored for faculty and researchers is the best way to influence authors to utilize their institution's repository, rather than a subject or other repository, to meet deposit requirements. Personalized outreach also builds goodwill toward the IR and improves cultural opinions of openness. To be sure, Czech IR administrators and librarians desire to bring OA to their scholarly community. Eleven Czech organizations have signed the Berlin declaration (OpenAIRE, 2016, n.p.). The Association of Libraries of Czech Universities (AKVŠ) lists supporting OA as a change in scholarly communication as its first key activity and has joined SPARC Europe to strategically reinforce this goal (2016, n.p.). The important next step appears to be moving OA and IR enthusiasm from within the library out to the larger research community.

This strategy has been successful elsewhere—OA mandates have sprung up from within several key institutions in the US. MIT, Harvard, and the UC system have adopted landmark OA

policies, but upon close inspection faculty are the driving force behind these policies, not necessarily the governing bodies of the Universities (MIT, n.d.; President and Fellows of Harvard College, 2015; The Regents of the University of California, 2014). Undoubtedly, this requires a hefty dose of stakeholder education. Out of the Czech institutions included in this study, the University of Pardubice and Tomas Bata University in Zlín have OA mandates and the Academy of Sciences has an OA policy; all three are represented in the ROARMAP directory of OA mandates and policies along with Brno University of Technology, which was not included in this study, for a total of four Czech institutions with OA policies or mandates (ROARMAP, 2016, n.p.). In practice it matters little whether the OA attitude is called a policy or a mandate; incentives and user education are still integral in meeting target goals for full text.

What makes an IR OA?

In reviewing live search results in July and August of 2016 from the six repositories included for this research project, the author found that each one contained content that was not accessible to an outside user. As of September 8, 2016, Tomas Bata University in Zlín states that 645 of its total 4,518 bibliographic records are OA (2016, n.p.). The University of West Bohemia Digital Library and the University of Pardubice delivered much more freely accessible content in sample searches, but still contained some locked documents. The IR of Charles University is divided into collections, and the identity of the collection determines OA; for example, the pre-2006 ETD repository requires a login, while full text is available in the ETD repository that began in 2006. The ETD IR of the Czech University of Life Sciences in Prague contains publicly accessible records of each thesis and dissertation, but not the text itself. Meanwhile, despite its OA policy, the IR of the Academy of Sciences delivers very few full texts in sample searches, making the challenges discussed in Burešová's 2013 report on its transition from a citation index

to an IR evident. In her participation in this project, Burešová says that the Academy of

Science's major success has been the "growth of freely accessible full texts" in the IR (personal

communication, June 20, 2016). These accomplishments should be celebrated. Supporting OA

does not necessitate a 100% OA repository; it necessitates a dedication to continual OA

improvements.

2015-2016 was a very productive time for the IR librarians at the West Bohemia

University in Pilsen: they prepared a new design for the repository, received more support from

the governance of the university, signed the Berlin Declaration, and began preparing to connect

the IR and the publication repository, all thanks to their dedication to improving their repository

(M. Pourová, personal communication, June 16, 2016). The University of Pardubice Library

identifies two major successes: passing the OA mandate and connecting the repository and the

university bibliographic database (L. Melicharova, personal communication, June 20, 2016).

Taking into consideration the Academy of Science's transition from bibliographic index to IR,

alignment of pre-existing repositories or indices with OA and institutional repositories is a

common strategic goal. Tomas Bata University in Zlín has set its sights on this as well, putting

its success as "High level of integration of all our services... Leading in technological

advancement," (I. Masár, personal communication, July 20, 2016). Apparently if Czech IRs have

not already achieved alignment, they are well on their way.

Future Goals and Challenges for Czech IRs

Looking ahead to the future goals and challenges for IR administrators in the Czech

Republic, the topic of OA compliance returns. The West Bohemia University Library in Pilsen

plans to convince its scientists "by lectures, campaigns, and discussions that OA is good for them

and for the university," and is focusing on integrating the IR with a scientific database following

	Possesses OA Policy/Mandate?	Signed Berlin Declaration?	Collects more than ETDs?	Use IR for InfoLit?	Public Usage Stats?	Discoverable via Google Scholar?
West Bohemia University in Pilsen		√	√		√	√
Czech Academy of Sciences	√	√	√		√	√
University of Pardubice	√		√	√	√	√
Czech University of Life Sciences in Prague				√		
Charles University		√	√			
Tomas Bata University in Zlín	√		√	√	√	√

Fig. 1: Table comparing features of Czech IRs examined for this research project. Data is accurate as of September 15, 2016.

a new directive from the Dean of Science and Research and applying long term preservation techniques to the student theses (M. Pourová, personal communication, July 20, 2016). The University of Pardubice Library views fulfilling the OA mandate and launching a data repository as major upcoming challenges (L. Melicharova, personal communication, June 20, 2016). The Czech University of Life Sciences in Prague sees transitioning the ETD repository to an OA repository for all university output as the biggest upcoming challenge; this requires persuading the university management that research publications and other documents should be OA in the repository (H. Landová, personal communication, June 21, 2016). Tomas Bata University in Zlín views applying OA principles to the IR in a more technical approach, stating that the major

challenge is "insufficient quality of local data on publication outputs," which needs a "change in the workflow of reporting," (I. Masár, personal communication, July 20, 2016). Indeed, every challenge flows back to improving organizational culture: no library is an island, and all require the cooperation of its institutional bureaucracy to meet goals.

Conclusion

In order for IRs to continually improve, administrators must build on existing accomplishments. Joseph (2016) holds the view that there are three main next steps for IRs: better interoperability, broader thinking of the types of content IRs can hold and what activities that content engenders, and consideration of the IR as integral to the mission of the institution. Several of the Czech libraries examined for this research project have or are in the process of broadening their IR collections to include content like grey literature and data, which is already established as a documented trend in the literature.

Regarding interoperability, academic and research institutions must position their IRs to serve a meaningful purpose alongside subject repositories, national repositories, and research repositories. In the case of the Academy of Performing Arts (AMU) in Prague, Horová and Chvála (2010) describe the national ETD registry project started in 2008, theses.cz, and the action the authors took to ensure quality ingestion of non-text theses from the AMU IR to theses.cz. Offering hosted content for aggregation in larger cooperative networks—whether they be national repositories like theses.cz, the National Grey Literature repository, nusl.stk.cz, or EU digital libraries like Europeana.eu—is one approach to meet interoperability needs. The other approach is content discoverability via Google Scholar. According to preliminary searches, Tomas Bata University in Zlín, University of West Bohemia Digital Library, and the University of Pardubice have achieved this; some IR collections from Charles University are discoverable

via Google Scholar, but not all. It may be a worthwhile goal for Charles University and the Academy of Sciences to pursue item discoverability in Google Scholar.

The largest challenge for administrators of Czech IRs may be integrating the functions of the IR into the mission of the institution. The libraries discussed here are doing it, albeit through grassroots efforts to convince faculty and institution leaders of the importance of OA. The libraries that indicated challenges with cultivating stakeholder buy-in (West Bohemia University in Pilsen, Czech University of Life Sciences in Prague, and University of Pardubice) as well as those with OA policies/mandates (Academy of Sciences, Tomas Bata University in Zlín, and University of Pardubice) will benefit from umbrella support from their institutions. Ideally, support from the Czech government in concert with the EC's H2020 program will guide each institution in mission alignment as well as interoperability. Trans-EU support for this already exists from JISC, OpenAIRE, SPARC Europe, and PASTEUR4OA. As mentioned above, librarian outreach efforts to convince institution faculty and researchers of the preference for the institutional repository may be a useful strategy in connecting the EC's H2020 funding mandate with local OA efforts.

Pinfield et al. (2014) conducted a seven year survey on hundreds of open access repositories and note that "mandates may be crucial in determining the future development trajectory of repositories… if they are effective, mandates clearly need to be worded in a robust way and complemented by meaningful incentives and sanctions as well as accompanied by compliance monitoring" (p. 2418). Nicholas, Rowlands, Watkinson, Brown, and Jamali (2012) administered a survey on digital repositories to a massive sample of nearly 1700 scientific researchers to measure attitudes towards repositories. The authors note that younger researchers are more likely to deposit their scholarship, and that while most deposits are done voluntarily, "It

does appear that institutional funding mandates and peer pressure are extremely helpful in terms of driving deposition behavior" (p. 204). Czech academic and research institutions could benefit from examining what their OA mandate/policy means to the different demographics within their institution. Examination of worthwhile incentives to use the IR for students and younger researchers could lead to better marketing and training opportunities for these demographics.

References

Armbruster, C., & Romary, L. (2009, November 23). *Comparing repository types: Challenges and barriers for subject-based repositories, research repositories, national repository systems and institutional repositories in serving scholarly communication*. Rochester, NY: Social Science Research Network. Retrieved from http://dx.doi.org/10.2139/ssrn.1506905

Association of Libraries of Czech Universities (AKVŠ). (2016). *Key activities.* Retrieved from http://akvs.upce.cz/en/key-activities/

Bailey, C. W., Coombs, K., Emery, J., Mitchell, A., Morris, C., Simons, S., & Wright, R. (2006). *SPEC Kit 292: Institutional repositories*. Washington, DC: Association of Research Libraries.

Bruns, T., & Inefuku, H. W. (2016). Purposeful metrics: Matching institutional repository metrics to purpose and audience. In B. B. Callicott, D. Scherer, & A. Wesolek (Eds.), *Making institutional repositories work* (213-229). West Lafayette, Indiana: Purdue University Press.

Budapest Open Access Initiative. (2002, February 14). Retrieved from http://www.budapestopenaccessinitiative.org/read

Budínský, L. (2016). 10 years with grey literature at Tomas Bata University in Zlín. *The Grey Journal 12,* 65-69.

Buehler, M. A. (2013). *Demystifying the institutional repository for success*. Oxford: Chandos.

Caletka, S. (2016). Parliamentary Institute. *The Grey Journal 12,* 15-20.

Callicott, B. B., Scherer, D., & Wesolek, A. *Making institutional repositories work.* West Lafayette, Indiana: Purdue University Press.

CASLIN. (2009). Proceedings from CASLIN 2009: *Institutional online repositories and open*

    access. Teplá Monastery: Czech Republic. Retrieved from

    http://www.knihovna.zcu.cz/open-access/dokumenty/Caslin09.pdf

European Commission, Directorate-General for Research & Innovation. (2016, August 25).

    H2020 Programme: Guidelines on open access to scientific publications and research

    data in Horizon 2020. Retrieved from http://ec.europa.eu/research/participants/data/ref/

    h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

Fabián, O. (2013). Open access in the Czech Republic: An overview. *Library Review 62*(4/5),

    211-223.

Fojtů, A. (2009). Open source versus commercial solutions for a long-term preservation in digital

    repositories. Proceedings from CASLIN 2009: *Institutional online repositories and open*

    access. Teplá Monastery: Czech Republic.

Francová, P., & Krueger, S. (2016). Challenges in providing unpublished research data in

    biomedical engineering to grey literary repositories. *The Grey Journal 12,* 36-43.

Horová, I., & Chvála, R. (2010). Non-text theses as an integrated part of the university

    repository: A case study of the Academy of Performing Arts in Prague. *Liber Quarterly*

    20(2), 226-241.

Horová, I., & Mach, J. (2009). National repositories of ETDs and grey literature in the Czech

    Republic. Proceedings from CASLIN 2009: *Institutional online repositories and open*

    access. Teplá Monastery: Czech Republic. Retrieved from

    http://www.knihovna.zcu.cz/open-access/dokumenty/Caslin09.pdf

Joseph, H. (2016). Next steps for IRs and open access. In B. B. Callicott, D. Scherer, & A.

    Wesolek (Eds.), *Making institutional repositories work* (323-327). West Lafayette,

Indiana: Purdue University Press.

Kalkus, S. (2009). Libraries and librarianship in the Czech Republic. *Advances in Library Administration and Organization 27*, 99-107.

Lhoták, M., & Chýla, R. (2009). Open access and institution repository: Approach of the Czech Academy of Sciences and link up to international projects. Proceedings from CASLIN 2009: *Institutional online repositories and open access.* Teplá Monastery: Czech Republic. Retrieved from http://www.knihovna.zcu.cz/open-access/dokumenty/Caslin09.pdf

MIT. (n.d.). *MIT Faculty Open Access Policy*. Retrieved from http://libraries.mit.edu/scholarly/mit-open-access/open-access-at-mit/mit-open-access-policy/

Nabe, J. A. (2010). *Starting, strengthening, and managing institutional repositories: A how-to-do-it manual*. New York: Neal-Schuman.

Nicholas, D., Rowlands, I., Watkinson, A., Brown, D., & Jamali, H. R. (2012). Digital repositories ten years on: What scientific researchers think of them and how do they use them? *Learned Publishing 25*(3), 195-206.

OpenAIRE. (2015). *Open access policies and mandates*. Retrieved from https://www.openaire.eu/oa-policies-mandates

OpenAIRE. (2016). *OA in the Czech Republic*. Retrieved from https://www.openaire.eu/oa-czech

OpenDOAR.org. (2016). *Growth of the OpenDOAR database - Czech Republic, institutional repositories*. Retrieved from http://www.opendoar.org/onechart.php?cID=58&ctID=&rtID=2&clID=&lID=&potID=&rSoftWareName=&search=&groupby=r.rDateAdded&orderby=&charttype=growth&wid

th=600&height=350&caption=Growth%20of%20the%20OpenDOAR%20Database%20-
%20Czech%20Republic,%20Institutional%20Repositories?cID=58&ctID=&rtID=2&clI
D=&lID=&potID=&rSoftWareName=&search=&groupby=r.rDateAdded&orderby=&ch
arttype=growth&width=600&height=350&caption=Growth%20of%20the%20OpenDOA
R%20Database%20-%20Czech%20Republic,%20Institutional%20Repositories

Picarra, M. (2015). Push the door wider!. *Research Information* (81), 8-9.

Pinfield, S., Salter, J., Bath, P. A., Hubbard, B., Millington, P., Anders, J. H. S., & Hussain,

Azhar. (2014). Open access repositories worldwide, 2005-2012: Past growth, current

characteristics, and future possibilities. *Journal of the Association for Information*

Science and Technology 65(12), 2404-2421.

President and Fellows of Harvard College. (2015). *Harvard faculty of Arts and Sciences*

open access policy. Retrieved from https://osc.hul.harvard.edu/policies/fas/

Procházková, I., & Vyčítalová, L. (2009). Institutional repository at the university. Proceedings

from CASLIN 2009: *Institutional online repositories and open access*. Teplá

Monastery: Czech Republic. Retrieved from http://www.knihovna.zcu.cz/open-

access/dokumenty/Caslin09.pdf

The Regents of the University of California. (2014). *Read the UC OA policies*. Retrieved from

http://osc.universityofcalifornia.edu/open-access-policy/policy-text/

ROARMAP. (2016). *Browse by country: Policies adopted by quarter*. Retrieved from

http://roarmap.eprints.org/view/country/203.html

Rosenblum, B. (2008). Digital access to cultural heritage and scholarship in the Czech Republic.

Slavic & East European Information Resources 9(1): 12-29.

Rydberg-Cox, J. A. (2006). *Digital libraries and the challenges of digital humanities*. Oxford:

Chandos.

SPARC Europe. (2016). *Our work*. Retrieved from http://sparceurope.org/our-work/

Skolková, L., & Nič, M. (2009). Institutional repositories and document citation. Proceedings

from CASLIN 2009: *Institutional online repositories and open access*. Teplá

Monastery: Czech Republic. Retrieved from http://www.knihovna.zcu.cz/open-

access/dokumenty/Caslin09.pdf

Sojka, P. (2009). An experience with building digital open access repository DML-CZ.

Proceedings from CASLIN 2009: *Institutional online repositories and open access*.

Teplá Monastery: Czech Republic. Retrieved from http://www.knihovna.zcu.cz/open-

access/dokumenty/Caslin09.pdf

Štogr, J. (2009). VirtuReal Open Access 2.0. Proceedings from CASLIN 2009: *Institutional*

Online Repositories and Open Access. Teplá Monastery: Czech Republic. Retrieved from

http://www.knihovna.zcu.cz/open-access/dokumenty/Caslin09.pdf

Stone, S. M., & Lowe, M. S. (2014). Who is citing undergraduate theses in institutional digital

repositories? Implications for scholarship and information literacy. *College &*

Undergraduate Libraries, 21(3-4), 345-359.

Suber, P. (2004, September 2). Praising progress, preserving precision. *SPARC Open Access*

Newsletter, 77. Retrieved from http://nrs.harvard.edu/urn-3:HUL.InstRepos:4736612

Suber, P. (2015). Open access overview. Retrieved from

http://legacy.earlham.edu/~peters/fos/overview.htm

Tananbaum, G. (2013). Institutional repositories: The promises of yesterday, the promises of

tomorrow. In P. Bluh and C. Hepfer (Eds.), *The institutional repository: Benefits and*

challenges (1-12). Chicago: ALCTS Publishing.

Tkačícová, D. (2009). Open access institutional repository and the role of academic library staff:

   Reconsidering the position of the academic library in preserving and disseminating

   university's scholarly output. Proceedings from CASLIN 2009: *Institutional online*

   repositories and open access. Teplá Monastery: Czech Republic. Retrieved from

   http://www.knihovna.zcu.cz/open-access/dokumenty/Caslin09.pdf

Tomas Bata University in Zlín. (2016). *TBU publications: Repository of TBU publications*.

   Retrieved from http://publikace.k.utb.cz/