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Optimizing Library Services — Research Data Supporting Services that Libraries Can Offer based on the Experience of the University of Tartu Library

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A new age of science is evolving — one driven by data management for which a variety of technological solutions are used. In recent years, governments and funding agents have requested certain measures in the preservation and publication of research data for quality reasons. For example, the European Commission's Open Research Data Pilot required participants to store their research in repositories and allow "third parties to access, mine, exploit, reproduce and disseminate free of charge," influencing all data financed through the European Commission and the Horizon 2020 program (European Commission, 2013, p. 3). Researchers are now investigating ways to comply with these data management requirements. Therein lies an opportunity for academic libraries to adopt a leading role by offering research data-related assistance. This recent challenge that academic libraries face does not merely include updating infrastructure. In addition, it also requires the re-orientation of library services and librarian skills, as well as general library goals, missions and strategies.

Numerous academic and research libraries have already welcomed the role of digital research data management and have begun offering related services. Some have taken it a step further, developing a selection of training programs targeting both researchers who produce and handle data on a daily basis, as well as librarians who offer different levels of support to such researchers. Even though many academic libraries offer various types of research data management (RDM) services and infrastructure, many universities struggle with convincing researchers to publish their data.

Collaboration in data management services among libraries, researchers, universities and government is the only way to make research data truly available and accessible. As academic libraries have assumed the leading role in RDM services, different case studies and research have been undertaken to pinpoint the best solutions and models for setting up auxiliary RDM services, developing necessary infrastructure for data publication, sharing and reuse, and improving librarian skills; the role of libraries in the life cycle of research has been examined in debates.

When the institutional needs and expectations placed on academic libraries change, libraries must rise to the occasion and reprogram. Change is not always the easiest thing to accept and libraries tend to be traditional rather than trend-setting innovators. Academic

leaders need to re-evaluate libraries' long-term goals based on the new objectives of their institutions. The fact is that libraries need to be prepared to set data management, sharing and storage as a priority as soon as the institution is ready to do so. Data services need to be developed and adapted quickly in order to remain relevant and meet the needs of researchers. Should libraries emerge as unprepared, the credibility of their importance as well as their role within the institution would be negatively affected. New goals require libraries to quickly change the technological tools applied, library services rendered, and, primarily, the skill sets possessed by librarians. This new reality requires libraries to take an active role and show initiative.

RDM services require librarians to work more outside of the scope of their usual environments, rather than tackling routine tasks. More than ever, these new data-related library services are relocating to where the respective clients — i.e., researchers — are, and desist from concentrating on developing in-house services connected to the library's physical environment. Building strong collaborative relationships with researchers who until now formed the principal user group of digital databases and otherwise had little connection with the library, fostering scanty comprehension of the library's work, is a novel skill that librarians need to adopt. In fact, researchers often lack the required training, time or knowledge in data management and their justified expectation is that someone else will handle this part of their research. If previously it was the desire of few researchers to share and store their data on a long-term basis, data sharing is undergoing a transformation into an unavoidable future requirement. Many institutions and researchers are now looking to libraries to provide the necessary services, training programs and infrastructure. And many leading libraries have already accepted the challenge by tackling the development of RDM models. Their research has thus provided a list of steps necessary for setting up such services.

In most cases, each specific institution fosters a set range of services they can or are expected to render; however, a number of similarities appear during the above set-up process. RDM services include various components and

consist of three phases. The relevant components include data management planning, active data management, data selection and handover, data repositories, and data catalogs. Within a full research life cycle, data services can, in general, be divided into three phases: the

pre-project phase (RDM plans, guidance), the active project phase (includes guidance in the following areas: data documentation, formats, standards, storing, managing, analyzing, data types and storage platforms), and the post-project phase (long-term preservation and accessibility of data). Most importantly, effective data

management and sharing proceeds from relevant institutional strategy and policy, and is always accompanied by guidance, training programs, and support services. For libraries, it is important to understand that they play an integral part in a more sweeping process, and that acting alone they cannot develop successful RDM services. Libraries require support from university management in terms of policy and strategy, as well as from researchers who would provide data on which libraries can build data services. It is a managerial task to assess an institution's current position, needs and research data infrastructure, develop core RDM principles, and to ratify the resulting policy. Based on the strategy, a business plan and funding tools will also need to be established by the institution's management (Jones, Pryor and Whyte, 2013).

Based on our experience of the **University of Tartu Library**, we recommend taking an active approach. The library alone cannot set up effective RDM services. It is necessary to maintain contact with researchers who are the main producers of data. While convincing researchers to share their data is a rather political task and may not always be a library's main competence; training librarians to offer necessary support services and infrastructure totally is. When setting up training for librarians, there are various reference materials as well as institutions that can offer necessary support. For instance, FOSTER (Facilitate Open Science Training for European Research) project's training portal offers various training

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materials needed in understanding open science and RDM. Data librarians and other faculty liaison librarians need to refocus their core competencies such as storage, archiving, meta-data, and data description skills in relation to data. Data librarians must keep their acquired skills and competencies up-to-date and follow RDM-related trends in librarianship as the latter also require new skills, including project management, public relations, and international collaboration. Likewise, library services must also be built on these new needs and competencies, constituting a switch from collection-based services to RDM-based services.

For infrastructure set-up and support, libraries could join the COAR (Confederation of Open Access Repositories) network for open access repositories. When setting up a data repository, a library should consider if necessary infrastructure already exists within the university or country (central) or if there is any international infrastructure that could meet the needs of their researchers (OpenAIRE). There is no worse thing than setting up another repository that nobody will ever use or which is not linked to an international search engine. This will not help any library's reputation.

The key word in any RDM services set-up is *collaboration*. Experience from various university libraries also demonstrates that RDM services are not something one unit within an institution can implement alone; it

takes a contribution on a wider scale from the entire institution. Even further, the collaboration should not be limited to one institution, not even one country. Since most academic libraries are facing same RDM service set-up challenges, it is important to look for guidance and support from outside. There is no point to re-invent the wheel!

Libraries are facing major changes in the 21st century. The role, the focus, and the mission of libraries are changing. More than ever, universities and researchers need libraries and their expertise. Each individual library must make an important decision in terms of either willingly making the effort to administer all of the required changes, or remaining idle in waiting for a more appropriate moment in time. Regrettably, research needs are changing very quickly and waiting may no longer constitute a valid option. For once, it may become necessary for libraries to take a risk and adopt a quick solution instead of following a more traditional and time-consuming process of thought.

For more on our research with RDM in the **University of Tartu Library**, read Chapter 8 "Collaboration between Researchers and Academic Library: Road to Research Data Country-Wide Consortium and Innovation in Library Services" in *Technology-Centered Academic Library Partnerships and Collaborations*, ed. Brian Doherty. IGI Global, 2016.

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Congratulations to **Edward Elgar Publishing** which has been awarded the **Fox Williams Independent Publisher of the Year Award 2017** at this year's **Independent Publishing Guild (IPG) Awards**. As a "resolutely forward-looking business," expanding into law publishing and building digital platform Elgaronline, the judges praised EEP for "punching way above its weight despite competition from far larger operators." "Edward Elgar produced an outstanding performance in a difficult market in 2016," the judges said. "It is a very well run and profitable company with excellent

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