

# Information Specialist facing new challenges: Open science and research and scholarly publishing as new areas of expertise

*Best practice article*

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## **Abstract**

The open science and research (OSR) movement has been shaping the world of scholarly communication for a few years now. In Finland, the Ministry of Education and Culture (2018) promoted research information availability and open science through the Open Science and Research Initiative. As a part of this initiative, an evaluation of the openness of Finnish research organizations was completed (ibid.). The first evaluation indicated that OSR functions needed clearer guidelines and a coordinating unit to further improve the cultural maturity in Lahti University of Applied Sciences (LAMK). Furthermore, the scholarly publishing activities also needed a new home base due to organizational changes. As the information and library services had the basic understanding of scholarly publishing, different publishing channels and responsible conduct of research, it was decided that the library takes on these responsibilities. For the new challenges, the traditional information specialist skills set needed updating. New skills were acquired via both formal and informal learning, benchmarking and trial-and-error. These new skills were immediately put to use in LAMK by creating a new open access publishing platform, organizing workshops and lectures for the staff and creating organizational guidelines for open RDI practices. The next organizational maturity evaluation ranking round proved the library's new expertise, as LAMK climbed two levels up, being the second highest university of applied sciences in Finland (Ministry of Education and Culture 2017). As for the role of the information specialists, the new role as OSR experts has opened up new possibilities within the organization. They are now seen more as possible partners in different RDI activities, participating in project work and further developing the way openness is being carried out in all aspects of RDI and teaching. The paper offers a case example of how library professionals

**Keywords:** open science and research, scholarly publishing, information professional's roles

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## **Introduction**

The open science and research (OSR) movement has been shaping the world of scholarly communication for a few years now. Academic libraries have been taking the lead of the Open Access movement for well over a decade, both in North America and in Europe (Bosc & Harnad, 2005). What started as promoting Open Access has since then expanded to promote all areas of openness, with research data management being one of the newer additions to this palette (Plutchak, 2016).

In Finland, the Ministry of Education and Culture promoted research information availability and open science through the Open Science and Research Initiative in 2014-2017. The Initiative published an OSR Roadmap in 2014 to support progress towards openness and to define certain objectives and actions, which could then be evaluated. The openness of Finnish research organizations was first evaluated in 2015, and then again in 2016 to evaluate progress. (Ministry of Education and Culture, 2016)

The evaluation employed a five-level maturity model, where organizations were placed after their scores had been analyzed (Figure 1). In the first evaluation ranking Lahti University of Applied Sciences (LAMK), among many others, was placed in Level 1 (Unmanaged), which meant that no steps had yet been publicly taken towards open operational culture and that the organization lacked guiding principles and policies. (Ministry of Education and Culture, 2015) This was a much needed wake-up call, since it clearly indicated that OSR functions needed both guidelines and a coordinating unit to improve the cultural maturity in LAMK.

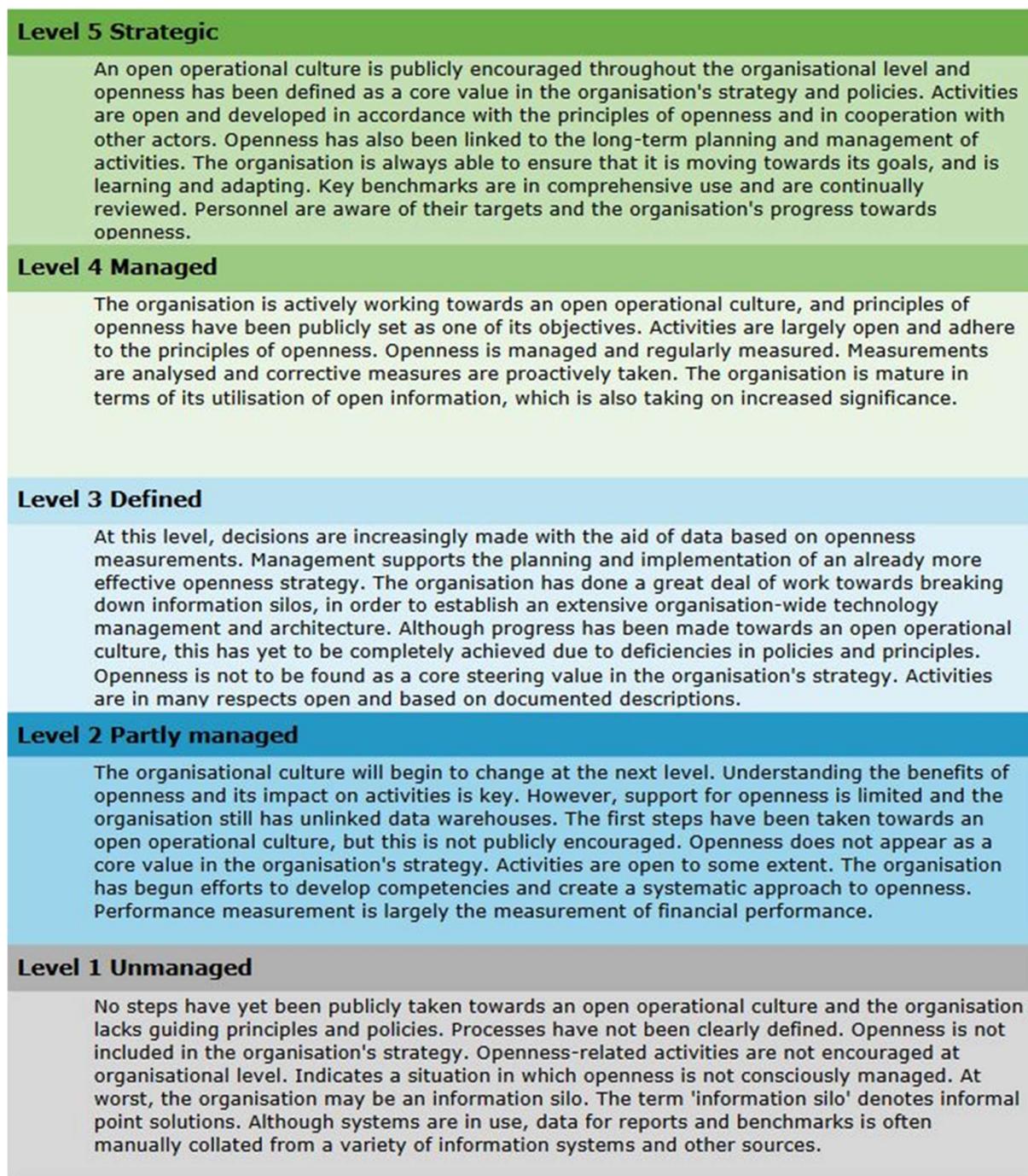


Figure 1. Hierarchy of the maturity levels for openness (Ministry of Education and Culture, 2016, 10).

Some of the information specialists in Lahti Academic Library had already started to educate themselves on the different aspects of openness by participating in the OSR expert training provided by the ministry's initiative. It was therefore only natural that the library was involved in developing openness within LAMK from very early on, at first in co-operation with the Research, Development and Innovation (RDI) services. While this co-operation had many advantages, the downside was that OSR was still lacking a clear coordinating unit within the organization. Around the same time LAMK's scholarly publishing activities also needed a new home base due to organizational changes. As the Academic Library already had the basic understanding of scholarly publishing, different publishing channels and responsible conduct

of research, it was decided that the library takes on the publishing responsibilities. In addition the library was assigned the main responsibility of both developing and promoting openness in LAMK. This meant that the information specialists now had a new role as the organization's leading OSR experts.

This article offers a case example of how these new responsibilities were met and how they opened up new possibilities to information specialists. It also discusses the ways the library professionals can diversify and update their skills pool and by doing so shape the future of their profession.

### **Openness as a new professional landscape for academic librarians**

As already mentioned, academic libraries are in the forefront of the open science movement. There are several reasons why libraries have taken up promoting open access, the most obvious one being the traditional role of the library as disseminating information as freely as possible: at the same time, there has always been the issue of expensive scientific journals with their strict licensing policies, which have left many potential readers behind paywalls. When added with the ever increasing subscription fees on one hand and the budget cuts many libraries face on the other, it's no wonder that open access is seen as something worth promoting.

In addition to the ideology of openness fitting so well to the libraries' agenda, there is also a more practical side to consider, and that is the professional skills pool that the academic librarians are equipped with. The basic skills of librarians in locating, organizing and disseminating information have already been having important effects on the creation, development and management of digital content in general (Ogungbeni et al., 2016, p. 118). In addition, librarians have the advantage of coming from various academic backgrounds, which helps them to understand the different outlooks and perspectives of different disciplines: this in turns helps to see things from another angle and in a broader perspective (Plutchak, 2016, p. 4). When all these skills are combined, librarians have a strong starting point for understanding, developing and promoting the different aspects of open science within their institutions.

There is also the question of home base: according to Ogungbeni et al., more often than not the propagation and advocacy of open access, not to mention open science in general, are not claimed by any constituency as belonging to their domain (2016, p. 117). Ogungbeni et al. continue to argue that because the basic focus of libraries is to make information available to anyone, they need to take lead and see open access as their obligation (2016, p. 117).

If and when academic libraries accept openness as their domain, they must also engage in activities which promote openness in all levels of their organization (Ogungbeni et al., 2016, p. 117). Keskitalo (2015) has listed three aspects of openness that are particularly important for libraries to focus on: their role in open publishing, the impact of openness on their collections and information service work, and the rise of research data and methods as information materials alongside publications.

This article focuses mainly on the first aspect on Keskitalo's list. The following chapters present ways in which Lahti Academic Library has taken a new role in both open access publishing and other open science practices. But first there is one more aspect of the changing librarian landscape that is worth considering.

### **Librarians outside of the library?**

The role of the academic library has evolved together with the priorities of the academic institutions (Ogungbeni et al., 2016, p. 114). With a growing emphasis on openness, academic librarians engaging in open science activities often find themselves outside of the library, both physically and organizationally (Plutchak, 2016, p. 4). Plutchak sees that these evolving roles place librarians in more intimate and embedded relationships with the surrounding research community than has been common in the past (2016, p. 4). While this may raise questions about professional identity, it does reflect the changing paradigm of what an academic librarian is and does. Instead of being the traditional librarian positioned in the library, there are now librarians who are working more outside of the library than in it. This can also bring about a healthy change in perspective: Plutchak argues that we need to think of the library in terms of what is best for its organization, not what is best for the library itself. He goes on to suggest that it is more fruitful to advocate for the role of the librarian by focusing on the particular skills a librarian can offer, instead of worrying about “the library” as a whole being involved. (2016, p. 4)

This shift in perspective is also evident in Lahti Academic Library and its parent institution LAMK. With the new role as OSR experts, the information specialists have been expanding their professional networks both inside and outside of LAMK, getting involved in projects that have nothing to do with the library per se, but at the same time raising awareness of the versatile services, know-how and skills pool that the library has to offer. This has not only shifted the library’s view on itself, but also on LAMK’s view on the library, making it more as an integral part of the whole organization and involving the library’s experts in development work that in the past wasn’t seen as something a library could contribute to.

### **Information Specialists as change agents for openness: case LAMK**

Lahti University of Applied Sciences (LAMK) is an international multidisciplinary higher education institution located in the city of Lahti, around 100 kilometers away from the capital city of Helsinki. LAMK’s fields of study include culture, business and hospitality, social and health care and technology. Currently LAMK has around 5,000 students studying towards a Bachelor’s or a Master’s Degree, and the number of employees is around 400.

LAMK’s research, development and innovation (RDI) activities concentrate around four diverse focus areas of Design, Smart business, Wellbeing and regenerative growth, and Circular economy solutions.

Lahti Academic Library was established in 2011 as a joint library, and is today maintained in collaboration with the universities operating in Lahti, namely Lappeenranta-Lahti University of Technology and University of Helsinki, with LAMK as the library’s parent institution and main financier. The library is the only academic library in the area, and its services and collections are open to all.

### **Taking the lead as OSR experts**

As the responsibility of open science and research functions and publishing activities shifted to the library, the traditional information specialist skills set needed updating. New skills included OSR understanding, the familiarity with all the services linked to OSR, further expertise on

copyright and data protection issues, scholarly publication and communication and different technical skills.

New skills were acquired via both formal and informal learning, benchmarking and trial-and-error. The basic skillset on OSR was acquired by participating in Open science and research training program, organized by National open science and research initiative. In addition, online courses and webinars proved valuable insight. (See Forsström & Kuttilainen, 2019, p. 9)

For benchmarking, several other universities of applied sciences (UAS) and their OSR and publication processes were assessed in order to find the most suitable practices for LAMK. Benchmarking activities were particularly useful in developing publishing services, enabling the new functions to be built upon the functioning practices of others. Furtherly, learning by doing, or trial-and-error method, helped to create solid guidelines to tackle gaps and avoid mistakes or oversights once done.

### **Building blocks of an open culture**

A lot needed to be done in order to promote openness and develop publishing activities further. The cultural change towards openness needs to be done throughout the organization, and as a part of that, the OSR principles have been incorporated into the LAMK RDI programme for 2016 to 2018. To make the development systematic, both OSR and publication functions got their own development plans, which are updated yearly. Furtherly, LAMK started taking a more active part in national level projects for promoting openness.

In everyday life of the organization, furthering openness was implemented in many ways. The most prominent changes were made to publishing activities and staff training and guidance. In addition, OSR terminology was accustomed to an UAS setting.

### **Open Science or Open RDI?**

Finnish higher education operates on a dual structure, which consists of universities and universities of applied sciences (UAS). The two have clearly defined functions, where the universities conduct basic and applied research with an academic focus, while the universities of applied sciences have a more working life oriented approach in their teaching and research (Finnish National Agency for Education, 2018).

This is why, unlike in universities, the research and development activities of the universities of applied sciences are not so much scientific as they are applied research, based on incorporating their practical knowledge and strong know-how with the latest scientific research. However, the principles of open science still apply to these research, development and innovation activities. This is why the universities of applied sciences, LAMK included, have in recent years adopted the term open RDI.

Another reason for adopting the term is quite practical: it hits home better within the scope and context of an UAS. When the open science themes were first discussed with the LAMK faculty, they found it irrelevant in an applied science setting. The term open RDI is simply more selling and much better accepted as something integral to what an UAS such as LAMK actually does.

In short, Open RDI, like open science, aims to openness in all areas of RDI activities, from methods and collected data to results and publications. The aim is to increase the overall quality, reliability and visibility of RDI activities, as well as to promote the social impact of projects and encourage new innovations (e.g., Lahti Academic Library, 2018).

### **Academic librarians as publishers**

The notion of academic libraries as publishers is not new: as argued by Bankier and Percivali, academic libraries became alternative publishers in the wake of institutional repositories, when they started to upload research output of their organizations to their local repositories (Ogungbeni et al., 2016, p. 117). This is also the case with Lahti Academic Library, where the library has since 2006 been responsible for maintaining LAMK's collections in the Open Repository Theseus, a service provided by Arene, the Rectors' Conference of Finnish Universities of Applied Sciences. Theseus holds LAMK's thesis and the publications of LAMK's own publication series. Latest addition has been the Parallel Publications –collection, with an aim to provide green open access to scientific articles written by members of LAMK staff and originally published in non-OA journals. This collection is still in early stages and currently only holds a couple of articles.

Open repositories aside, offering publication services is another new role academic libraries are engaging in (see Ogungbeni et al., 2016, pp. 116-117). This also holds true with LAMK: the library took on from where the previously responsible party had left when the publishing activities of LAMK were appointed to the library in the Spring of 2016. At the time LAMK published two separate online professional magazines in addition to the publication series, one in Finnish and one in English. The publishing criteria and guidelines were quite vague and it was unclear which citation system was to be used, how long the articles were supposed to be, etc. It was obvious that there was plenty of room for development, so a publishing reform was set in motion. A year later, a new open access publishing platform LAMKpub was launched, hosting two online journals: the professional magazine LAMK Pro and the more research oriented LAMK RDI Journal. Both publish articles in Finnish and in English, and the editorial board of the platform and both journals consist solely of academic library personnel, the editor-in-chief being the director of information and library services. In addition, the platform showcases the LAMK publication series.

By starting fresh, it was easier to create a solid set of principles aiming to improve the quality, openness and transparency of the publications of LAMK. This included creating detailed instructions for writers for both journals, and establishing Harvard as the referencing system to be used in all publishing activities. For marketing purposes the platform got its' own logo to give the publishing activities a more visually solid image, which could then be used for example as a banner in various websites. (For more details see LAMKpub, 2018)

There was also a need for an easy way for not only to contact the editorial staff, but also to ask for assistance in anything to do with publishing – in short, there was a need for an easy-to-maintain helpdesk. As a solution, a shared mailbox for the publishing activities was created. This has several advantage points: there is usually at least one team member reading and answering the mail, and having a shared mailbox also promotes the transparency of the editorial decisions and publishing processes, since they are not in anyone's personal emails. This has

resulted in a more unified conduct and thus a higher quality of publishing. The publishing team also has a private group in Facebook for discussing editorial matters.

### **Library as a staff training agent**

In addition to publication reform, Lahti Academic Library started to organize OSR workshops and lectures for the staff of LAMK. These training sessions provided opportunity also for the library personnel to enhance their knowledge simply by engaging and sharing views with other professionals, thus enhancing confidence and doing outreach to faculty personnel (see also Rodriguez, 2015). Workshops and lectures were seen as such an asset that an open science and research teaching and guidance are now bookable on-demand from the library using a simple web form.

Furtherly, it was quite soon discovered that all the new principles and guidelines needed a hands-on practical guide to help the personnel to navigate the changing landscape. Thus the Guide to publishing and the Guide to Open Science and Research were born. Guides are created using LibGuides, a SpringShare product for content management used to curate knowledge and share information, organize class and subject specific resources, and to create and manage websites (Springshare, 2018). Guides both provide an overview of LAMK practices in OSR and publications and offer deeper insight with specific issues like data management, citations and reporting your publications. Guides are being updated regularly and in compliance with the questions and requests coming from the staff.

### **What has changed?**

As stated before, an evaluation of the openness of Finnish research organizations was completed for the first time in 2015, before the library was the co-ordinating unit in OSR activities in LAMK. The first evaluation indicated that OSR functions needed clearer guidelines and a coordinating unit to further improve the cultural maturity in LAMK (Ministry of Education and Culture, 2015). The next organizational maturity evaluation ranking round proved the library's new expertise, as LAMK climbed two levels up, being the second highest university of applied sciences in Finland (Figure 2). In scoring, LAMK accumulated 19 points more than in the first round (Ministry of Education and Culture, 2016). For the next maturity evaluation ranking, the aim is to achieve level four maturity, which indicates that organization is actively working towards an open operational culture, and principles of openness have been publicly set as one of its objectives (Ministry of Education and Culture, 2016). In regards of openness, 94 percent of LAMK publications were available open access in 2017. This is an excellent result in comparison to national UAS level, in which the openness percent was 69 (Ministry of education and culture, 2018).

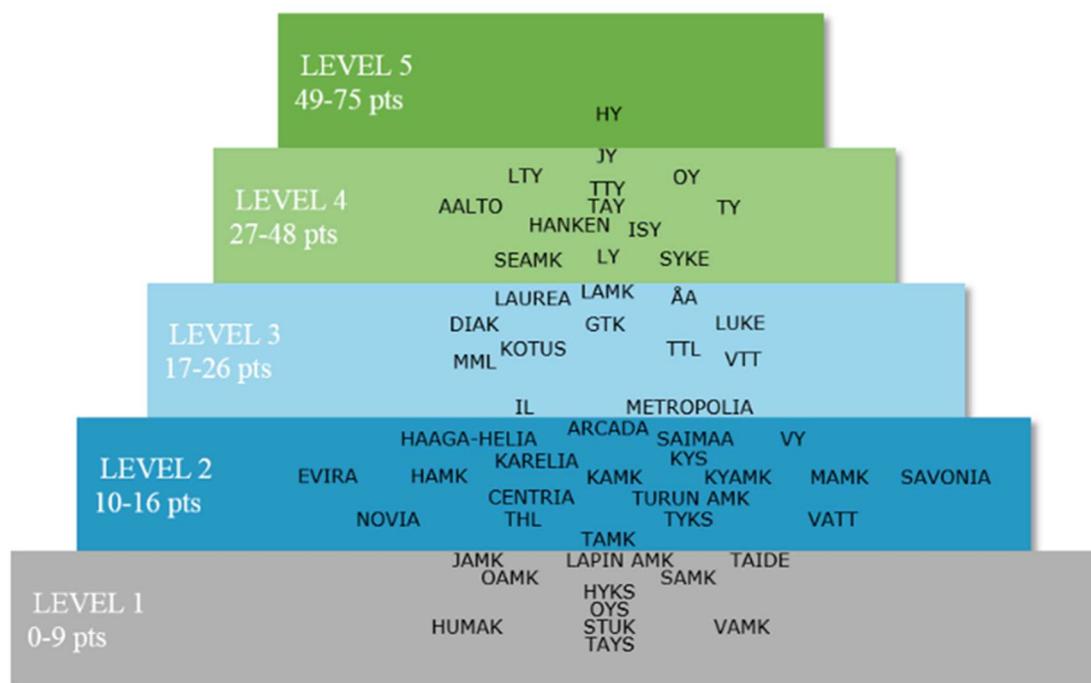


Figure 2. Overview of operational cultural maturity rankings of Finnish research institutions, universities and universities of applied sciences (Ministry of Education and Culture, 2016, 26).

As for the role of the information specialists, the new role as OSR experts have opened up new possibilities within the organization. They are now seen more as possible partners in different RDI activities, participating in project work and further developing the way openness is being carried out in all aspects of RDI and teaching.

One example of RDI integration was the Innovation Scout project carried out in 2017, in which openness in RDI functions were promoted in many ways, thus enabling innovations and more effective use of resources. Especially data management and digital preservation were looked into, resulting in three pilot projects working together with information specialists and making their data as managed and preserved as was possible. Taking part in the process and working with very different kinds of materials lead to increased know-how in both project workers and information specialists, setting goals for further improving LAMK's research data management functions in both competence and working methods (Kiviluoto, 2018).

In teaching, the rise of open scholarly publishing has lead to emphasizing the source evaluation skills in selection of high quality sources. When openness becomes a new norm, it is also increasingly important to be able to understand the process of scholarship as conversation and to know the working mechanics of scientific publishing (Klucevsek, 2017). This skillset is known as information literacy and in part science literacy, which is taught by both information specialists and the rest of the teaching faculty.

On the other hand, the teaching materials and methods should be as open as possible. Open educational resources is already a well known concept usually defined as digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research (OECD, 2007). Promoting the openness in teaching at large is one of the future goals in LAMK, and some steps have already been taken, like creating a study skills MOOC open for everyone.

## Discussion

It can be stated that information specialists in their new role are influencing and persuading campus stakeholders on important issues and serving as ambassadors of change (see also Jaguszewski & Williams, 2013). The development work done is not limited inside the library walls or only to functions directly related to the library, but affecting the organization as a whole by implementing openness in all levels of organizational development.

As for the lessons learned, two of the most valuable features of a change agent for openness have proved to be patience and perseverance. It is one thing to make reforms: another story is putting them into practice. Implementing new practices takes both time and patience, as old habits and customs do die hard, and changes on an organizational level do not happen overnight. To promote and encourage the change, it is important to have both a homebase and a clear division of duties for OSR. In addition, it is helpful to have all the needed information readily available, so they are easy to find and adopt. Intranets are of course one channel for this, but in the spirit of openness not the most desirable solution. This is why in LAMK LibGuides have been utilized to help with the transition, establish new conducts and make it easier to find all the needed information and instructions in one place.

In future, the development work continues, concentrating in open data provision and usage and promoting openness in teaching materials as a part of Finnish Ministry of Education and Culture's key project. LAMK is also taking a part in a national project called Open RDI, learning and innovation ecosystem in Universities of Applied Sciences and within it, working especially for strengthening the culture of openness, setting up a national openness helpdesk and opening RDI integrated learning. In addition, the goal for next organizational maturity ranking is to reach a level four maturity, which indicates that organization is actively working towards an open operational culture, and principles of openness has been publicly set as one of its objectives. New evaluation is set to be carried out in 2019.

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