

Press release
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Digital and connected – Electronic Laboratory Notebook at FLI

The Leibniz Institute on Aging – Fritz Lipmann Institute (FLI) in Jena has implemented the Electronic Laboratory Notebook (ELN), thereby taking up a leading role in the German research landscape. The ELN is mandatory for use for all laboratory documentation at the institute since July 2019.

Jena. Experimental data are the basis of research and science. For more than hundred years, all information about the planning, realization and analysis of scientific experiments has been accurately documented in hardcover laboratory notebooks. In the course of the digital age, this form of documentation reaches its limits because nowadays most scientific data is delivered electronically. It is thus obvious to document the data in digital form in an Electronic Laboratory Notebook (ELN). This digital documentation has some major advantages compared to the handwritten version: it is clearly legible, the documentation is accessible to full-text search and can be shared with others through defined access permissions. This increases the usability of the data in the research team.

The handling of daily produced data needs durable and powerful storage solutions and complex data management systems, that is software that structures the data for future searches and link it to data from related experiments. For this purpose, computer-based documentation systems are introduced into scientific laboratories and enable continuous electronic data processing - from the measuring instrument through analysis to online publication. The ELN takes the role of an accompanying tool in this process and serves for a comprehensive documentation of the experimental process.

The Leibniz Institute on Aging – Fritz Lipmann Institute (FLI) in Jena has taken up this new challenge in the routine laboratory work and started to establish an ELN in its laboratories in 2018. The institute-wide use has been realized since July 2019.

Analysis of the Software Market

“In 2017, following the decision to introduce the Electronic Laboratory Notebook at our institute, a team started to evaluate available software products. We compared performance characteristics, usability and connection to existing systems”, says Dr. Karol Szafranski, head of the Core Facility “Life Science Computing” at FLI, who is leading the ELN process since middle of 2018. Volunteers of the scientific staff took part in testing more than a dozen software products and helped to list around 100 criteria for the ELN to have or nice-to-have, as a basis for the purchasing procedure. “One and a half years of Sisyphus work lie behind us, which could only be achieved through the active participation of our colleagues”, reviews Dr. Szafranski. Important

software criteria were a long-term license model, ongoing development of the software including adaptations to the institute's infrastructure, compliance of data security and personal data protection, as well as customer support.

ELN Implementation Process

The program RSpace by Research Innovations Ltd. (Edinburgh, UK) was selected as the result of a public tendering procedure. The operation and the software configuration on an FLI server started in October 2018. At the same time, an agreement on the usage of electronic documentation systems was worked out together with the FLI works council. It was necessary to support employee's rights to software training and the protection of personal data, given the introduction of a technology that could, in principle, be abused for tight monitoring of employees. Subsequently, functional tests of the ELN were carried out.

Because the active user group at the institute comprises more than 200 employees, training of all users seemed unrealistic. Thus, a decision was made to train according to a "domino system". This means, so-called "multipliers" were trained first and then shared knowledge with their colleagues. Further steps were a training workshop for group leaders and additional open training offers. Additionally, an intranet page offers information on training material and usage instructions and also offers a possibility for the users to give feedback in order to react quickly to possible problems or to collect ideas for new program features.

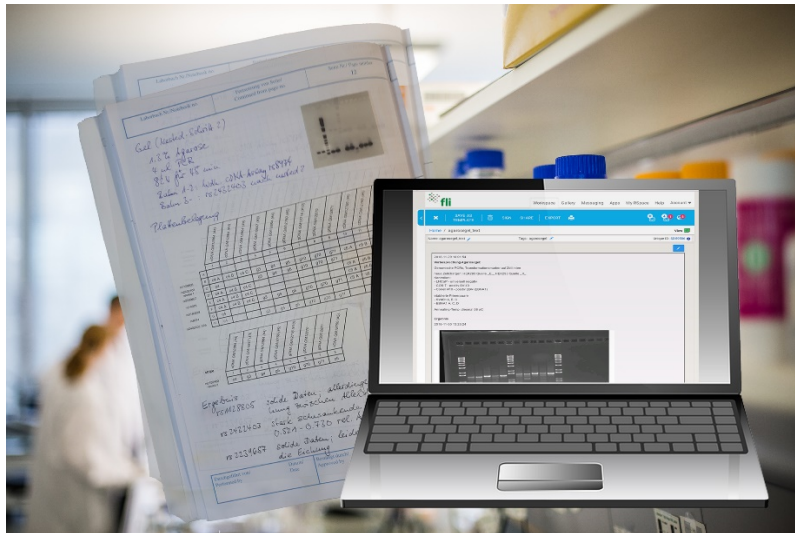
"Implementation and training phase proceeded without notable problems", says Dr. Szafranski. A survey in March showed, that the ELN was positively adopted by the users at FLI: 19% of the research groups rated the ELN on the same level as the classical laboratory notebook, however, 62% rated it more efficient. "This positive result confirms our strategy, and we are optimistic to further promote the acceptance of the ELN with additional training courses, particularly for those colleagues who might need more time and help to adapt their workflow". With the implementation of the ELN, the FLI is playing a pioneer role within the Leibniz Association. Especially the mandatory use across the institute is outstanding throughout Germany.

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Picture:

Since July 2019, the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI) in Jena has implemented the mandatory use of the Electronic Laboratory Notebook (ELN) for every laboratory documentation. (Source: Kerstin Wagner / FLI)

Background information

The Leibniz Institute on Aging – Fritz Lipmann Institute (FLI) – upon its inauguration in 2004 – was the first German research organization dedicated to research on the process of aging. More than 350 employees from around 40 nations explore the molecular mechanisms underlying aging processes and age-associated diseases. For more information, please visit www.leibniz-flj.de.

The Leibniz Association connects 95 independent research institutions that range in focus from the natural, engineering and environmental sciences via economics, spatial and social sciences to the humanities. Leibniz Institutes address issues of social, economic and ecological relevance. They conduct knowledge-driven and applied basic research, maintain scientific infrastructure and provide research-based services. The Leibniz Association identifies focus areas for knowledge transfer to policy-makers, academia, business and the public. Leibniz Institutes collaborate intensively with universities – in the form of “WissenschaftsCampi” (thematic partnerships between university and non-university research institutes), for example – as well as with industry and other partners at home and abroad. They are subject to an independent evaluation procedure that is unparalleled in its transparency. Due to the institutes’ importance for the country as a whole they are funded jointly by the Federation and the Länder, employing some 20,000 individuals, nearly half of whom are researchers. The entire budget of all the institutes is approximately 1.9 billion EUR. See <https://www.leibniz-gemeinschaft.de/en/> for more information.