The Changing Face of Information Professional in the Pharmaceutical Industry

John Wickenden, FCLIP, Retired, ex Eli Lilly & Co.

wickenden@outlook.com

As a Chartered Librarian in a library in a Research and Development (R&D) site of a major American Pharmaceutical Company my objective has always been to get relevant information to the scientists in the quickest and most effective way. Over the forty plus years that I have worked in the industry this has always been my objective, but over the years the way I achieved this has changed dramatically.

Pre-digital era

When I started work as an information professional in the early 1970s everything was paper based. Organic chemists used to search the indexes of Chemical Abstracts, Derwent Farmdoc and Beilstein for days on end to check that their latest idea was novel. There were high overheads as well, for example we subscribed to Derwent's Farmdoc Manual Code Cards which every week we had to file into the correct order, which took an admin person many hours each week. Then to search these cards you had to pick the smallest relevant category and then manually scan each card to find relevant patents. Again, this would take many hours looking through hundreds of cards. My role during this period was mainly training the users to use paper-based information effectively, but I would also reach out to other libraries to obtain information not easily accessible at our site. For example, the Royal Society of Chemistry Library, Aslib and the Science Reference Library in Holborn (later the British Library Science Reference Library).

The rise of online and the value of information professionals

Everything changed in the late 1970s with the start of online searching with Dialog, Blaise and Orbit, so we did not need to search many of the key databases manually and in fact it gave us access to many databases previously unavailable to us. But because of the high costs of connect and print charges along with the training needed to be able to search the databases effectively, all the searches had to be done by information professionals rather than end-users. Although the online speed was slow (300 baud acoustic modem) to start with, we could quickly and more effectively search the key databases. Taking the example of searching the Derwent Farmdoc Manual Code cards above, when you did this search online you could easily combine multiple Manual Codes and reduce the number of possible patents to check to a handful in a few minutes.

Over the next few years the online hosts developed their wares and searching became more complex. In the mid-1980s you could search Chemical Abstracts by chemical

structures rather than using names and/or registry numbers. Again this searching was done by information scientists rather than by end-users. Also the online speeds increased with X-25 Packet Switch Stream (PSS) connections.

The start of end-user search tools

In the late 1980's the end users could start to search electronic information themselves. I developed an in-house library administration system that gave all our end users' desktop access to our book catalogue, journal holdings (at individual issue level), inter-library loan/photocopy requesting and a company scientific publications catalogue. We also purchased a CD-Rom version of Index Medicus/Medline that end-users could search themselves. But only one year at a time could be searched so it was a bit slow to search multiple years. In 1992 we purchased the ADONIS electronic journals on CD-Rom so that our users had almost instant access to hundreds of biomedical journals, the index of which we made available on the library administration system.

End-user searching takes off with the advent of the web

In the mid-1990s the Internet became a reality and more end-user search tools became available, along with PC based search tools. The search tool that had the most impact for the pharmaceutical industry was Chemical Abstract's SciFinder software. This allowed organic chemists to search for chemical structures for themselves on their desktop PCs. This had previously been untaken by information scientists. It was in the late 1990s that information scientists had to change from doing information retrieval to doing more proactive information analysis, but also supporting the end-users in their use of end-user tools.

Also with the advent of the Internet and also the Intranet, more and more information resources were becoming available to end-users. This included PubMed/Medline, the major biomedical database that became freely available on the web in 1997. In the late 1990s more and more electronic journals became available online. Our company started with American Chemical Society journals in 1998, Elsevier's ScienceDirect in 2000 and Wiley Interscience soon afterwards. This meant that hundreds of full text journals were available to scientists at their desk. We also made good use of the company intranet to help users access relevant information resources. This involved writing our own HTML web pages.

The demise of the physical library and advent of the virtual library in the early 2000s

During the late 1990s our physical library was under threat as prime office or conference space was required and very few people were actually visiting the library now many resources could be accessed from the desktop. The Library was located in a beautiful position in an old Victorian house with French windows out onto a patio. I had already foreseen the demise of the physical library and become a biomedical information scientist in 1997. In 2000 our large physical library closed and the older journals were moved to mobile shelving in a basement. The old library became a conference room. Soon afterwards the UK library staff were adsorbed by the US HQ Library Staff and we became a virtual library. The Librarian retired in 2003 and was never replaced. The remaining library

was run by a part time administrative assistant, mainly doing photocopy requests from the British Library.

Information scientists integrated into the business to become competitive information scientists

At the beginning of 2004 I wanted to develop my role as a biomedical information scientist and wanted to understand the information needs and practices of the biologists in discovery research. So I set up a project to interview ten to twelve senior biologists to find out how they used external information resources.

As a result of this project a number of recommendations were made to biologists to improve the way they used external information. About a year after carrying out this project the organisation of biology was changed dramatically and their information needs became primarily drug target based rather than disease based. As a result I changed my services to them to take account of the changes. In the USA information scientists were starting to do competitive information analysis for key compounds that were coming up to product decision. Although I was also doing this on a smaller scale, as a result of my project in 2004 I decided that our local biologists needed competitive information much earlier in the development cycle. I persuaded my Manager in the US that this was a real need for my customers, and she allowed me to undertake this work as an experiment. This resulted in me being much more integrated into the research business, attending project meetings, etc. This required access to multiple drug pipeline databases (Cortellis, Pharmaprojects, ADIS R&D Insight), scientific patent and literature databases, etc. We acquired various electronic tools to help us collect relevant information on various drug targets, which would help us write an analysis of the area. In 2009 the idea of providing competitive information in early drug research was taken up by the whole of the competitive information team. As part of this role we used the company intranet and the MS Sharepoint tools, text mining tools (like Linguamatic's I2E) and specialist desktop tools (like BizInt Smart Charts). Later we used Northern Light's knowledge management tools to capture internal tacit knowledge

Conclusion

Over the years I become more of a specialist, and also more proactive in the way I provided information to my customers. I also had to know my customers' needs intimately and get integrated into their business.

My career in a fast moving industry meant that I had to adapt quickly to technological changes and apply them to my role to effectively manage information for my customers. If I had stayed in my Librarian role I would have been redundant in 2003, if not before. If I remained a biomedical information scientist I would have probably left in 2009. But because I was far-sighted enough to see the changes ahead I remained in a very productive and fulfilling role until I retired in 2015. I did have another advantage because I was almost my own boss until 2005 (when we became part of the Lilly Information and Knowledge [LINK] global LIS team) so I could relatively easily introduce changes without becoming embroiled in company politics. Also being a small R&D site I could easily get to know my customer's needs, as I met them over coffee, lunch, etc.!

Lessons learned

- **Be informed** - get to know your customers' info needs. Meet with key customers regularly
- **Be available** - always have time for them, even when you are busy. Listen carefully to what they say
- **Be visible** - Use lunchtimes to sit with different people/regularly walk around the site
- **Be supported** - develop LIS advocates/supporters, for extra money and resources
- **Be willing to change** - don't get stuck in a rut! Push appropriate boundaries for new technology

Appendix

List of new technology introduced

Throughout my career I always wanted to ensure that the company had excellent and cutting-edge resources. Over the years I introduced new technologies as soon as they were shown to be valuable, and sometimes before. Being part of a resource-rich innovative company helped dramatically, because they wanted their research staff to have value-added information that would help them make quick business decisions. Below I have listed the major new resources that I introduced over the years.

1972 Purchase of Derwent's Chemical Patent Index (Agdoc and Farmdoc).
1977 Online Searching. Signed contracts with Dialog, ESA-Recon (Dialtech), Blaise and Orbit.
1979 Computerised Book Catalogue – Batch creating and print-out.
1980 Purchase of Microfiche/film of journals to save space.
1981 Signed up with Questel DARC for substructure searching of Chemical Abstracts.
1982 Signed up with CAS Online (STN) for substructure searching of Chemical Abstracts.
1986 Use of first PC. We had a Graphics terminal emulator to search STN and DARC using an X-25 Packet Switch Stream (PSS) connection at 1200 Baud. Also had word processing system IBM 5520.
1986 Wrote own computerised Library Administration system using CompuServe's System 1032 (Continued in active use until 1996).
1988 Purchase of SilverPlatter Medline on CD-Rom for end-user searching (Continued in active use until 1996).
1992 Purchase of Adonis journals on CD. The infancy of electronic journals (continued in active use until 2005). Purchased hard copy of PJB's Pharmaprojects our first Drug Pipeline resource.
1996 Created own Library intranet web pages.
1996 Internet end-user search of Medline using Ovid Web.

1997 Started using Sirsi Unicorn Library Administration system that our parent company had installed. About the same time we signed up our first electronic journal subscription. Digital VAX System 1032 Library Admin system closed down, replaced by Sirsi and Winchill.
2000 Signed up for a European License for ScienceDirect to provide the full text of forty-two journals. This was a collaboration of five Eli Lilly R&D Sites in Europe. I negotiated this agreement on behalf of the five sites. Also started negotiations with WileyInterscience and Nature for European licenses, these were taken over by Parent Company later in 2000 to create a Global license.
2001 Information Services division of Information Centre formed to maximise information science to the site. Chemical/Patents and Biomedical Information Scientists appointed. iDDb3 (later Cortellis) Drug Pipeline database purchased.
2005 Became part of LINK (Lilly Information and Knowledge) Information Research and Analysis global group.
2007 Pioneered use of Microsoft SharePoint technology in new company portal "LillyNet" to create a number of Collaboration Sites for department and customers. Used SharePoint's RSS Reader to create RSS Alerts for Literature and Patents using OvidSP and PatBase databases, these were used to deliver current information on key topics to customers, e.g. Drug Target information using an internal Wiki.
2008 Investigated various Social Media Tools to market LIS services and disseminate information, but because of intellectual property concerns, we had to use internal versions of Wikis, Facebook, Blogs, etc.
2012 Developed use of Northern Light's Knowledge Management tool to capture tacit knowledge around Drug Targets
2013 Piloted various Drug Pipeline database integration tools. None were developed enough at that time to make a purchase decision.