



Victor Henning, co-founder of Mendeley open-source software and website (www.mendeley.com) launched to help researchers manage and share publications, speaks about the idea of connecting researchers and their papers through the internet.

A conversation with Victor Henning, Mendeley (London)

“We Like To Be Nice To People”

LT: What is the idea behind Mendeley?

Henning: When Jan and I started writing our PhDs, we wondered why there wasn't a more convenient way of managing and sharing our collection of research papers. Similarly, we found it hard to know who else was working on similar research questions as we did. These were the problems that we had in mind when we founded Mendeley. So Mendeley is actually two things: Mendeley Desktop and Mendeley Web. Mendeley Desktop is a free academic software (available for Windows, Mac and Linux) to manage and share research papers. Mendeley Web lets you back up your research papers online, shows you research trends in your academic discipline, and connects you to like-minded researchers.

Academia is your target. Moreover, Mendeley is offered free of charge. Why did you focus only on the academic world? Why for free?

Henning: We focused on academia first because that's where we came from – we simply wanted to create a tool that would make our lives as researchers easier. Free,

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because we like to be nice to people! Yet, as we've stated on our FAQ, we'll have to start earning money at some point. What is free stays free, but we'll introduce additional “premium” features in the future – for example, more detailed statistics or more fine-grained literature recommendations, – which will only be available against a subscription fee.

Your company operates on the Web using Web 2.0 technology. For those who have never heard of Web 2.0, could you explain what it is?

Henning: I find it a bit tricky, too, because Web 2.0 has become such a catch-all phrase. However, I'd explain it as a web service in which content is not centrally produced by the owner of the website, but in which the users participate in the content creation. YouTube, del.icio.us or Wikipedia would be the prime examples.

In Mendeley's case, the Web 2.0 aspect is this: the users of Mendeley Desktop contribute to generating statistics about the research trends which can be viewed on Mendeley Web. Moreover, they can create research profiles on Mendeley Web to which other users can subscribe. So, when you add a new publication, a new award, or an upcoming conference travel to your profile, your network of colleagues will be kept informed via a newsfeed.

In a century when information flows at very high speed, do you think that Web 2.0 technology is an important tool to help academics find the right networks to stay attuned to changing trends?

Henning: Yes, because more and more information is becoming easily available, so semantic and collaborative filtering can help you narrow it down. I believe that in the medium term, once we achieve the necessary scale, this is going to be the most interesting application of Mendeley: helping you discover, in real-time, what the currently “hottest” papers, topics or trends in your discipline are.

Mendeley might also change the way that reputation in science is measured. Instead of citation-based metrics, which have come under increasing criticism due to their methodological problems, science could shift to usage-based metrics such as how pervasive an article is, i.e. how many people have read it. Did they only skim through it, or did they read it thoroughly, possibly more than once? How did they rate the article's quality, and which tags did they apply to it? There are many interesting ways to use this data to improve science – I'm currently writing an invited contribution to an MIT Press book about reputation markets in science.

Could you pinpoint the main features of the software you offer? Would you say that Mendeley is more than a reference-management tool?

Henning: Yes, definitely. While the standard reference management functionality and “cite-while-you-write” integration in Microsoft Word or LaTeX is available in Mendeley, there is so much more. I'd like to pinpoint three things:

The automatic metadata extraction: When you drop your PDFs into Mendeley Desktop, it will automatically extract the full-text – it will then be indexed so you can ‘search as you type’ across all your research papers. Mendeley Desktop then tries to guess the correct metadata from the full-text (author, title, journal, volume, issue etc.) to automatically create your reference library, and it will also parse each document's cited references, so you can add them to your library as well.

The collaboration aspect: Once you have set up your paper library in Mendeley Desktop, you can share and collaboratively anno-

tate research papers with your colleagues. Thus, when you're working on a paper together, instead of mailing back and forth references and PDFs, you can keep your libraries automatically synchronized with Mendeley Desktop. That's also a great feature for labs or research groups who want to maintain a common literature database.

The online back-up/multi-machine support: With simple drag and drop, you can back up your entire research paper library for online access in Mendeley Web. Also, this means that you can install Mendeley Desktop on multiple computers and easily synchronize your PDF library across them via your Mendeley Online Library.

Are you eagerly anticipating any future development to the software?

Henning: To be honest, I'm in a state of perpetual excitement about the future and impatience (sometimes bordering on frustration) about the present – because you always know how much better the software is going to be very, very soon. Of course, you can never catch up to that “very, very soon” because there are always new plans.

In particular, I'm thrilled about the upcoming improved integration with LaTeX and the plugin for Open Office Writer that we have planned. Besides that, we'll improve the metadata extraction and make external databases (such as PubMed or arXiv) searchable from within Mendeley Desktop. We'll also have a 'browser bookmarklet' (like CiteULike's or Connotea's) for saving metadata to your Mendeley Online Library – and the interface of the online library will be improved to resemble the desktop interface. Not to mention the improved statistics on Mendeley Web, or the recommendation engine in the near future...

How do you differ from other Web 2.0 platforms such as Connotea, by Nature Group, and CiteULike, sponsored by Springer?

Henning: CiteULike and Connotea are web-based social bookmarking services. That means you can capture metadata from

web pages with the help of a 'bookmarklet' and add them to a web account. However, there is no desktop integration and no

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connection to the huge PDF research libraries that most scholars already have on their computer.

Mendeley's starting point is the PDF library that you already have – it helps you turn your PDFs into a searchable database and enables you to share them, back them up, or cite them in Microsoft Word or LaTeX. Additionally, it's a research network where you can discover other scholars with similar research interests.

Do you think that Web 3.0 technology will improve the way people interact on the Web?

Henning: If you're referring to the semantic Web, I believe it will. For example, look at Last.fm. By aggregating the music

listening habits and semantic tags of its 20 million users, they have managed to create the largest ontological classification of music in the world. Thanks to that (and their recommendation engine), it has become incredibly easy to find songs and artists similar to the ones you already know and like. We'd love to achieve the same for research papers.

Although all of the Mendeley founders (Victor Henning, Stefan Glänzer, Paul Föckler, and Jan Reichelt) are German, your company's headquarters are in London. Why choose the UK and not Germany?

Henning: We knew from the start that we wanted to launch Mendeley as an English-language software and website, since English is the *lingua franca* of research. Paul was already based in London when we started (he had worked as a freelance web-developer, among other things working on a movie recommendation engine for the British Film Council), and Stefan was here, too – he had been the first investor and Executive Chairman of London-based Last.fm for the past few years.

Moreover, when you're based in London, you have access to world-class universities all around you (Cambridge, Oxford, Imperial, King's College, UCL, LSE etc.), and London is also the centre of venture



capital in Europe. Plus, we had the chance to rent our first office in Covent Garden from Michael Palin. Which Monty Python fan could resist that temptation?

Did you start up the company with your own money or did you apply for public funds?

Henning: Jan, Paul and I started developing the prototype with our own savings. After about half a year, in June 2007, we approached Stefan (who had just sold Last.fm to CBS at the time). He became the first investor and joined as a co-founder, and also brought us in touch with the former founding engineers of Skype. They are now running an investment fund which had previously invested in Versita (www.versita.com), an academic publishing company, and they saw the potential for Mendeley to help researchers work more effectively – so they

also joined us as advisors and investors. Finally, a number of US and UK professors invested a bit of money, too.

Do all of the founders come from university backgrounds or is there anybody from industry?

Henning: Our background is very academic. Both Jan and I are still finishing our PhDs, at the University of Cologne and the Bauhaus-University of Weimar, respectively. Out of the founding team, I'm the one who's still the most active in research with conference presentations, journal submissions, etc. Stefan has been working in the internet industry for the past few years, but he also holds a PhD in Finance and is a guest lecturer at the WHU, a business school near Koblenz. Paul has a background in Computer Science and is thinking about going back into academia to pursue a PhD later on. One of our eight software developers also has a PhD in Computational Science, and most of the others are active in the Open Source community.

Do you promote research and development (R&D) in your company? If so, how do you invest in it? Do you co-operate with research institutions and other companies?

Henning: Yes, R&D is an important part of developing Mendeley, because we're tackling problems such as automatic metadata extraction, document fingerprinting, fuzzy metadata matching, author entity resolution and recommendation engines. It's simply a part of our engineers' job to work on these problems. We have also been co-operating with chairs at Cambridge University (UK) and the Bauhaus-University of Weimar (Germany) to work on some of these tasks.

Do you also invest in university students by offering them internships and traineeships?

Henning: Sure – we're always looking for enthusiastic people to help us out, not only in the field of computer science. For example, we've been thinking about creating part-time positions for PhD students in the natural sciences to help us better understand the needs of that community. If any of the readers are interested in helping us out, they should just drop me a line: victor.henning@mendeley.com

Do you have any tips for other scientists who would like to turn their ideas into a business?

Henning: Since this is only my second start-up (while studying at the WHU Koblenz, I co-founded the *Korova* café-bar) and we're just in the beginning, you should probably take my advice with a grain of salt. I'd say, as with any other start-up, the team is just as important as a solid idea. A bad team can mess up the best idea in the world. Ideally, you need at least two people – one should know the technical (or scientific) side really well, and one should be able to take care of the business side, because fundraising and management is trickier than you'd think.

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In our case, Jan and I had been friends since business school and had done projects together – and even though we fight sometimes, we know that we'll get along again half an hour later. Paul and I had also done projects together at the Bauhaus-University. As a team, we complement each other's skills and interests really well, so there was no conflict about how to divide the responsibilities.

Is there any advice you can give to young researchers?

Henning: I'm only 28 and haven't finished my PhD yet. Keeping that in mind, I'll just talk about what I think helped me the most – and that was choosing a very good thesis advisor (Prof. Thorsten Henning-Thurau, Bauhaus-University of Weimar, Germany). I couldn't have been luckier in that regard. It never was a hierarchical relationship; instead, he has always encouraged me to criticise his ideas when we were collaborating on a research project. He has taught me an incredible amount about scientific methodology and writing, he gave me complete freedom to teach classes at the Bauhaus-University, and, when we've been publishing papers or presenting our work to others, he always made sure that I got credit for the work I had done.

My advice would be: try to find an advisor who's willing to invest time into teaching you, who's focused on the merits of arguments instead of hierarchies, and who's giving you credit when you deserve it. These things determine the fun you'll have while writing your PhD.

INTERVIEW: GIULIANA DEFLORIO