# Proceedings of the Second ICSU–UNESCO International Conference on Electronic Publishing in Science

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## Is electronic publishing being used in the best interests of science?

## The Publisher's view.•

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Good morning, ladies and gentlemen.

I must admit I've had a few difficult slots at presentations and seminars before but I've never acted after the concluding remarks of the Chairman so apparently I can have no impact whatsoever on any conclusions from this conference. Some people might find that very reassuring.

I have been asked to answer the question: Is electronic publishing being used in the best interests of scientists? I am happy to do so and I would also use this opportunity to give a few personal observations on where the industry is going and where we should be going. I hope it will not be too boring for you at the end of this conference.

The answer to the question is: Not yet, but it will be. Electronic publishing is being used but not to its fullest extent yet, but it is absolutely great. It's the best thing since sliced bread that could happen to the scientific community. I can get very excited and carried away by that because it is fascinating what is already possible and, even more fascinating is what will be possible in a few years' time. I think we have only seen the beginning but once we are further down the road in a couple of years, I honestly think that electronic publishing will allow the literature to play a different role in the whole scientific research process and that should be in the interests of everybody – developed and developing countries. I don't want to seem obnoxious – but I do think that there is room for improvement in the research process. There is a lot of "reinventing of the wheel" still going on within countries and also in different countries. Admittedly I was not a very good researcher – that's probably the reason I landed in this job in the first place – but it is from my recollection of my own experience that we did not check the literature every day. We did a lot of literature research, wrote about it, and at the end of the day we looked for a few references from the official literature to beef up the results. You can say "that was you and that is why you were no longer allowed at university", but I would suspect there is more of that going on. If we can develop a system where literature is at the desktop of everybody, available 24 hours a day, that should greatly enhance the role literature plays in the research process. That is the way we are going and that is the way our company is committed and you should judge all our actions and policies in that light. I am happy to explain a little bit what we are trying to do, but let me first make a remark about commercial publishing, because sometimes we have been treated not as suspects but as already convicted people. I was pleased to notice in the concluding remarks of the Chairman that this conference has taken a much more balanced view than I occasionally encounter.

The issue "yes or no" for profit is not the big thing – it is about what kind of service do we deliver to the end–user, to the customer. If we get very hung up on an almost religious tone like "Thou shalt not make a profit from science publishing", I don't think that is very productive. I am personally not ashamed of making a profit and I would like to make more profit instead of less profit to be honest, but I would be ashamed if people were to say "you are not delivering a good service to the community" and that is what we are trying to do. To be fair, I am now in this position for two–and–a–half years, I do think there was a disconnection between the profits of some commercial publishers and the service we delivered to the community. Let me start on that note. But there is no use crying over spilled milk – just milk new milk. That is what we are doing at the moment. We are trying to enter into this bright new future and meanwhile correcting some of the issues from the past. Because the main problem from the past, in my opinion, is not the high price of a single journal subscription. That is a symptom but not the basic problem.

The basic problem is – and it is also the reason why these single items were so high – that fewer and fewer people took a subscription to the journal leaving the remaining customers to fund the whole bill of the system. That has gradually developed over many, many, many years and if you look back you would then wonder how is it possible, why was it not intervened before, but it is true. No journal started as a big journal. All journals start as small journals with thousands of subscribers. But with the explosion of scientific research, journals became bigger and bigger and the best journals became bigger more quickly than the poor journals. What happened is that prices went up, and I'll leave aside whether the price should have gone up as much as it did, but with every price increase you lose a few people on the edges who are marginally interested. I believe that first we lost all the students, then we lost the faculty staff, then we lost the marginally interested library, so we are now down to the hard core of big libraries normally very interested libraries but there are only a few of those in every field who have to fund the cost of the whole system and that leads to take prices of thousands of dollars per journal. Now, I think that for too long commercial publishers have accepted that if fewer people pay but they pay more, then the end result is the same. To me that is a false feeling of security because the main problem is that the accessibility to literature became less and less visibility means that in general the role literature plays diminishes, the journal becomes less important, is seen less and cited less, and ultimately has to be closed down. So, in my view the main problem is the visibility of the journals with only a few people paying the costs. To take the famous example of "Brain Research" which apparently costs $15,000 per annum, there are only a few hundred big institutes paying. Beyond that there is a very inefficient system of inter–library loan, document delivery, legal and illegal photocopying, with thousands of people using it without paying anything. This is not a very acceptable situation and we should be correcting that. I would not have known how to correct that in the paper world and I probably would not have taken this job because I don't like to start on an impossible mission: but I'm just lucky because the day I arrived electronic publishing broke through, and in my opinion electronic publishing will help us to solve all these problems in one go and do a lot more.

Electronic publishing does many things but first let me tell you what it doesn't do. It does not lower the total cost of the system – the infrastructure costs. The fact that articles need to be written, need to be reviewed, need to be typeset and need to be archived, made accessible, open link, whatever – those costs, if anything, will increase and they will continue to increase. But what it does do is to dramatically lower the marginal costs of allowing access to, instead of 600 people, to 601 people. The extra cost of that is virtually nil and that means that we should be more creative in the business model in the future. I understand there has been some debate about differential pricing and is even one of the recommendations. In my opinion that is the way to go and we have started with it already.

In developing the way we migrate our current paper customers we find that more and more customers get together through consortia. The result normally is that the existing customers keep on paying roughly the same as they did in the paper environment, but in return they get both paper and electronic and quite often more access to more journals only electronically. But they haven't lost out; they have gained more access. Typically, the consortium also has a few smaller players on board – small libraries that were previously very small customers to us or not customers at all – and they get the same access but at a lower price, which I think is the way to go. Also in our company we had lengthy debates – and I know that within consortia there are quite often debates – as to whether it is fair that University X has access to, say, a thousand journals and pays half a million dollars, whereas another university only pays $100,000 for exactly the same access? In my opinion that is completely justified. You could also say that the paper–pricing model was flawed. Why is it fair that a paper journal has a fixed price so that Los Alamos pays exactly the same as a university in Zimbabwe? I am not saying that we are deliberately changing one unfairness for another but let's not be too moral about these issues. Let's try to be practical because the problem with the paper model is that as prices went up the only people who took it, as I explained before, were the people who were very interested and normally also very big, leaving developing countries and small institutes always short–changed because although they might be interested in Brain Research they could not justify $15,000. If, in the electronic environment, we could for instance lower the price for existing customers from $15,000 to, say, $10,000 and have hundreds of small departments paying $1,000 each for unlimited access to Brain Research, I think we would all win. That is, in our opinion, the way to go. What we are basically doing is to say that you pay depending on how useful the publication is for you – estimated by how often you use it. That is something very different from paying by the drink. I do not believe that paying by the drink is a suitable model; it is cumbersome for us, but it is also cumbersome for our contract partners – the libraries and universities – and because, in science, the people who drink are not the people who are paying, it is a disastrous model as any bartender can tell you. So, we should have models where we make a deal with the university, the consortia or the whole country, where we say for this amount we will allow all your people to use our material, unlimited, 24 hours per day. And, basically the price then depends on a rough estimate of how useful is that product for you; and we can adjust it over time. It is a principle, which, in my view, is not immoral. We want to distinguish between big universities vs. small universities, corporate vs. universities, and maybe rich countries vs. developing countries. There is nothing wrong in that and any combination of the three, as long as people pay something for it, because I don't believe in giving it away for free. There is no such thing as a free lunch, as I was always told, and it only appears free for the end–user. This is appropriate but there are costs involved in the system, which somebody has to pay that I think are better done at a certain level per university, per country, etc. because then we have the best of all worlds. We have a very efficient system, where everybody who is even vaguely interested in the material has unlimited use. What more is required? We need organizations to run such a system which could be learned societies or groups of scientists or commercial publishers. It is up to us – the commercial publishers – to prove that we can provide a good service that justifies the price we want to charge in the future. And if we can't prove that, we will be out of business. It is as easy as that and we don't want to be out of business too since I still have a mortgage to pay. So that is a good incentive to keep on working on it.

Now, enough about differential pricing. Let me say a few things on the way we see the products going. And that is what is really exciting. Taking one step back: two–and–a–half years ago when I came back to Elsevier Science, I found a company that was completely different from when I had left it 10 years before. Then it had a business model for journals – we launched 30 to 40 new journals a year and off we go. When I came back the company was in complete disarray. There was a combination of fear and excitement that we still have, but fortunately there is more excitement and less fear nowadays. There was fear because people did realize that things are changing and changing for good and for ever. That might mean that somebody could steal away our business – different players like the Microsofts of this world or the preprint servers or whatever. So there was fear among some people. But there was even more excitement because although we are a commercial company, don't be mistaken about that, we employ thousands of scientists who are very, very committed to scientific publishing and are very committed to the scientific world. They feel themselves to be part of that community, and they saw very quickly what electronic publishing could do for their role. They saw the prospect of getting the information to the desktop of people, of adding moving images in all kinds of colours, three dimensional pictures, multimedia, etc. So there was a lot more excitement than fear but the problem was that everybody was doing their own thing. I don't want to bore you with all organizational issues but it was a lot of hard work, I must admit – not for me but for my colleagues – to sort it all out and it provides a good *raison d'être* for the existence of commercial publishers. Because, if there ever was a role for commercial publishers it is now more than, say, 20 years ago. Although some people feel it has become easier because of electronic publishing, it has in fact become an awful lot more complicated and an awful lot more capital–intensive. At Elsevier Science last year we invested $30 million in electronic publishing activities. That is more than we invested between 1950 and 1980 combined. Even allowing for the fact that we are a big company, so we have probably wasted half of the money, it is still a lot of money to spend on electronic publishing. This is not a time for amateurs to get involved, with all due respect. It takes people who are committed, who are well funded and are in it for the long term. I have seen it in my own company: small publishing groups getting excited about Web servers and after three months they got bored because it is rather tedious. In electronic publishing, because you have to adhere to very strict protocols, it is not just exciting; it's a lot of hard work. It is tedious and at the same time intellectually challenging. It is nice but it is not something on the side. It is not something that I find is done effectively by the scientists themselves. I understand their feelings that because of the high journal prices they wanted to have a go at the commercial publishers. If that is your sole motivation, I think that you are in for a shock because it is a lot of hard work and is that really what you want to do? If you really want to do that, then come and work for us. But if you want to be a scientist stay away from it because you underestimate the amount of work, the funds and also the perseverance that is needed to make it work in the long term. But I see this as a cry for attention, by people irritated by the fact that the old system was not working as well as it should. Now it is up to us – the commercial publishers and learned societies – to prove that we can develop a service that is well run and delivers what it should be delivering. Then there is no need for these initiatives from the scientific community. It is ironic that the whole world is talking about out–sourcing and the academic community would in–source a tedious job like publishing. It is much easier and more appropriate to leave it to people who do it full time and who are not clever enough for academic research and end up in publishing.

So, where do we see it going? What we have done to date is to complete the migration from the paper journals to an electronic database which contains all our journals with all articles as of 1995. That is 1.2 million articles in the database covering all the 1,200 journals under the umbrella of Science Direct. What you find is, the more you have the more extras you want. There is no limit to what people want and researchers and librarians are almost human in that respect: they also want more and more. Whereas two years ago people said that there is no need for back files, now they scream for back files because they wish they could link to the old literature. Yes, that would be nice and it will be possible. We have embarked on a big investment that at Elsevier Science within five years we want all our stuff going back to Volume I, Issue 1 of all 1,200 journals. We want also a seamless link with the non–refereed material because those distinctions are becoming blurred: preprints, refereed material, there will be one seamless flow of material from what I would like to call the "academic workbench". I would like to see a situation where, the moment you start writing an article you do it in such a format that it is constantly linked with the official and unofficial literature and where you are pointed towards stuff that is of importance to you. So when you start writing your article, after a few sentences our product should direct towards an article that might be relevant. That is making more effective use of literature instead of first finishing your article and then going on your bike to the library. The publisher should be doing that work and providing pointers to that material. So we see preprints and official journals merging into one journal and we also see the refereed material being completely merged with everything that is out there on the Web because – and I have also picked it up from this conference – everybody believes there is a future for refereed material and certainly we do that as well, but you shall not live by refereed material alone. There is more out there and what we will do in Science Direct, in the new release that will be available in March, is to allow a search through our own database of all refereed material while at the same time searching for everything that is out there on the Web through a search engine we have developed that is specifically aimed for scientific purposes, because we all know that search engines do not search the whole Web, they only search what you ask them to do. So we have asked the search engine to search the Web for scientific material and whether that is universities, author websites, etc. it will all be made available so you can then compare the research results from the refereed stuff and the unrefereed stuff. It is up to you to then choose, but we do believe that it is important that we make a distinction between those two. We are not trying to hide anything from the scientists. Let everybody have access to everything as long as it is made clear what is refereed and what is not refereed. I think that if we achieve that, we should be able to enhance the role literature plays and that is the main goal. As we said, we want the stuff to be available 24 hours a day at the desktop of everybody. We imagine a situation where everybody, the moment they get into the university or at their desk at home and switch on their computer, are immediately alerted to relevant material – derived from what they have been doing in the past – through a very sophisticated search. But it could also include mundane matters such as switching on your computer to find a first message "You might like to know that last night you were cited in this paper". The first thing you do is click on that button and look for what paper cited you. It's fun, it's pleasant, but at the same time you use literature more than you otherwise would have done because you look at the article and find it is interesting; so you look at a few references, and you are bound to click on one of these references and before you know it you are working with literature. So I am very optimistic about these possibilities.

You don't have to believe everything I say – hardly anybody ever does – but I would say we believe that the future electronic world is bright. We want to be part of it and it is up to us to prove that we play a leading role. There is more choice for the community and that is good because a bit of competition keeps us on our toes. We don't mind that at all. That is one concluding remark I would like to make. It is very, very important for you to understand that we are convinced that we can play a role but only in an open technology environment. We will make all our material linkable with anybody else who is there. We are not trying to corner the market and say: "We have a box that is only accessible to us". That is in nobody's interest – not of us and not of the end–user. I find it ironic, and also laughable to be honest if I may say so, that I often have the impression that we are more liberal now as commercial publishers than some of these society publishers who seem to be defending not just the interests of their members but also their own interests. I find it unbelievable and beyond words that the American Chemical Society refuses to publish anything that has appeared on a preprint server that is not run by the American Chemical Society. That kind of monopolistic behaviour we wouldn't even dare to think of. That cannot be the way to go. There is a role for everybody, and there is much more to be done. Big investment is needed but there are also bigger rewards to be gained because of the extra use that will drive it. The use of our database has gone up within a year more than 400%; that is incredible and there is no slowing down. If we have another year of 400% increase, I think people will use it so much that the debate on prices will go away. As a concluding remark then, prices are high per journal but the prices are not high for the whole system. Every university, as you have also learned this week, spends about only 1% of the total budget on all literature – not just ours – all literature, books and journals combined. But we also know that every library spends only a quarter of their budget on literature, and the rest is infrastructure. I am actually convinced that if we all deliver using the models that I have described, the infrastructure costs will come down dramatically. As you might have heard we have signed a deal with all Dutch universities that they have unlimited access to all the material Elsevier Science publishes – we have got a complaint from one librarian that we were destroying his document delivery business. I mean, what kind of comment is that? I am pleased to hear that the British Library last year for the first year ever, saw a decrease in the documents delivered because more and more publishers have these special arrangements (not just Elsevier Science but also Wiley Academic Press and the like) where people have more access to our material and, therefore, less need for document delivery which is sub–optimal. One last remark to illustrate this: two years ago we had about 500,000 subscriptions at Elsevier Science and we were used to the fact those numbers went down every year by a few per cent as librarians had to cancel. Now, with new contracts combining electronic and paper delivery, we have, at the end of December, more than 700,000 subscribers. This means there is no longer attrition. There are now 200,000 extra institutes who have access to our material than there was two years ago. As far as I am concerned we should not stop at 700,000; we aim for 7 million users, and this is not because I have made a big investment but because it is good for all of us. That is the way to go. Let's grow this business. We are so used to attrition in the number of subscribers when we are in a growth business. There is still more research, there are still more researchers every day. This is a very thriving business. The only thing that is not thriving is paper publishing but electronic publishing will do that and I hope to live to see it.

Thank you.