

New Competitors for the Publishers : the Cobbler and his Last

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1. Preface

There is an anecdote about an Irishman who, when a lost stranger asked him the way, answered: 'Well, if I were you I would not start from here.' A similar reply is possible in answer to the question in what direction information technology is heading. When discussing future developments we must realise that we are not in some Archimedean point in time from which we can view these developments objectively. The point we are presently at has partly been determined by these very developments. In view of certain current developments our position could even turn out to be a rather unfavourable one. Our realising the relativity of this circumstance would of course not be of any remedy, but it may help us in further attempts to shape our future. In case this sounds somewhat cryptic to you, I can assure you that I will return to this issue at the end of this article.

In the academic world it is suggested from time to time that universities should start issuing publications written by their own staff. In response to this suggestion publishers usually advise the universities not to embark upon a trade they are unfamiliar with. In doing so they usually point to a number of less successful efforts in setting up a university press or keeping it operational, concluding their admonitions with the advice: 'Cobbler stick to your last.' In this matter three questions appear to be relevant.

1. What is the academic 'last'?
2. What of the publishers' 'last'?
3. Do these 'lasts' differ in any respect?

The universities' core business is education and research. Scholars publish the findings of their own scientific research. They also take frequent notice of research conducted by colleagues who are engaged in the same discipline in and outside the university. At first glance one cannot think of a good reason why they should not get involved in publishing their own material. Even less, if one considers that universities have to pay for these publications more than once because they also fund:

- the salary of university staff members who write all these articles and papers;
- the salary of the reviewer who, at the request of the publisher, judges whether the articles are suitable for publication.
- the publication's purchase price.

But what is so special about the publishers' core business that it could not be taken over as an activity by other parties?

In the following treatise I would like to demonstrate that:

1. the *raison d'être* of traditional publishers' products is becoming more and more questionable in view of current developments in the field of information technology. I shall illustrate this by analysing the case of the scientific journal;
2. the question whether the publishing business needs to remain the exclusive domain of traditional publishers is no longer indisputable.

2. The Information chain

The publisher's role is often described as a link in the so-called information chain. At the moment there are many problems with the information chain. For readers not familiar with the jargon, the accepted definition of the information chain is as follows: 'An infrastructure consisting of a chain of groups which each fulfill one or more functions in the process of information supply by using the available means.' [Heine e.a., 1995)

This chain is usually represented graphically. The traditional representation used to be comparatively simple. At the moment, though, it seems to be becoming more and more complicated, since it is under the pressure of an ever expanding information stream and a range of technological developments. It looks as if the chain may explode.

This metaphor of an exploding chain or cycle is inappropriate, however. The chain is not bursting at all. What is exploding is the amount of information due to the way it is being transferred. The functions in the traditional information chain, however, i.e. production, distribution, acquisition and knowledge consumption, can all be carried out at a so-called integrated work site. In this context the image of an imploding chain would be more suitable: the system is starting to shrink being under the pressure of the environment.

The configuration of functions within the information chain is subject to change, whilst all parties involved are struggling to find their position in it. For instance, all kinds of arrangements are being made between universities and publishers on how they could explore their new roles harmoniously. There is a considerable danger, however, that they will remain stuck in the traditional chain.

This risk becomes clearer as we try to describe the information chain's development by means of the so-called synergy model (Zuyderhoudt, 1985). This model, borrowed from chemical theories on dissipative structures, is often applied to organisations and systems.

According to this model the control of processes within an organisation is stable, until the configuration is agitated by marked interior or exterior factors alien to the accepted pattern. Should the disturbances increase in number and extent, an unstable situation will arise during which all sorts of events could occur that the ruling order does not allow for. This situation could be characterised as one of chaos. But sooner or later out of the chaos a new order will emerge, an order that can secure a new stability under altered circumstances. If, however, a new order fails to arise, the result will be regression: stagnating development and a more or less random disintegration of structure.

In view of the developments in the field of information provision, this would imply the necessity of innovative and creative experimenting with new roles instead of an adherence to traditional patterns. Any strong attempt to preserve the old structure will not only impede development as such, but will also expose it to increasing danger of arbitrary disintegration.

Does this mean publishers could vanish? Or, to mention another significant party, that such a prospect awaits the libraries?

These questions are not relevant since the traditional division of information chain into clearly defined separate functions for publishers and libraries is no longer self-evident. In other words, the role the library and the publisher have is no longer definite. Instead, another

question becomes relevant, i.e. how will these parties react to an imploding information chain?

It is quite difficult to predict what new stable situation will emerge and subsequently consolidate itself as a result of current technological developments. It is simpler to analyse the situation of transition.

Let us look more closely at the publisher's role. Somewhat simplified, the traditional information chain consists of the following functions: production, distribution, acquisition and use. The publisher's main function is the distribution of information. Traditionally he has been engaged in the specific activities of gathering, quality certification, registration and diffusion. On the path from producer to manufacturer the publisher's added value has chiefly been in certification and distribution.

Yet, what are these 'specialties' in a situation when information for the most part is being supplied electronically? Some publishers have suggested the libraries' feature functions, i.e. securing the collection's accessibility and the supplying of user support, could then come within their range. This is, of course, a possibility. On the other hand, why should other parties, like the libraries, refrain from taking on activities like quality certification and distribution of information?

In the past the distribution of information was not considered to be an obvious task for the library. It presumed a marketing-orientated view, a requirement libraries could only meet to limited extent, even with the greatest of efforts.

Moreover, it has always been thought of as an uncertain business, an aspect which subvention providers tend to dislike. The distribution of information in digital form, though, is regarded as a less hazardous operation. As to quality certification, this procedure is usually taken care of by a specially appointed panel consisting of information producers and consumers. More closely observed, panel members turn out to be researchers employed by the universities. Eventually, the publishers appear only to be responsible for arranging the whole circuit, a job that could just as easily be taken over and carried out by the universities themselves. For the present we may therefore conclude that, in future, the publisher's added value may no longer be self-evident .

Let us now analyse the publisher's position within the context of the scientific journal. Since the effects of developments in information technology are becoming more and more manifest, this will prove to be relevant.

3. The evolution of the scientific journal.

In order to make clear the value specifically added by a publisher it is best travel back into history. *Journal des Savants* is the name of the world's oldest scientific journal. It was first published in 1665, more than 330 years ago. In the same year, in March 1665, a second journal was published: *Philosophical Transactions*. Considered a remarkable feat in that age, the content of both periodicals was not in Latin but in the vernacular language.

Why were these scientific journals founded? A major fact was the steadily increasing number of researchers. Similarly important was the influence of Francis Bacon who had successfully advocated the cause of systematic and empirical scientific inquiry and who had emphasised the significance of exploring written sources. In order to expedite the process of building on each other's findings as well as to avoid duplication of efforts scientists keep abreast of the results achieved and collected by colleagues. Bacon aimed at gathering library, laboratory and field work. Of course, there were books. But as a carrier of scientific information the book has always had a number of disadvantages. Its most significant drawback — an aspect that is related to its volume — is its tardiness, due to the precious time lost in its production. The book as such is also distinguished by a certain definiteness. Therefore it tends to be less

suitable for discourses on detailed investigations, especially if the subject requires the facility of additions, comments and reply. It was particularly these aspects that were of great importance to Bacon and his colleagues. Objections to the book as a means for propagating concise, relevant information were originally expressed by physicists, physicians and technicians. Increasing international contacts among scientists urgently called for a platform on which they could reveal and discuss the results of their research. Basically, they wanted to formalize their rather unstructured correspondence in a medium that was neither a book nor a letter. The scientific journal was the answer. Initially, the *Journal des Savants* was even a weekly magazine. The rapidly growing number of scientific periodicals indicated the existing need for them.

The need for communication among scholars has always been the very *raison d'être* of the scientific magazine. A board of editors was introduced to judge the quality of the contributions and the results they reveal. A hierarchy gradually emerged owing to differences in evaluations: some boards were more critical than others because they decided to introduce stricter selection criteria. Some journals acquired a more solid reputation than others. Consequently, scientists started deriving their stature from the reputation of the journal to which they contributed and readers were aware of the difference in quality. The distinction in quality even led to the rise of a ranking system. Gradually the ranking system began to play a significant role in the evaluation of scientific results, a role that is now firmly established, particularly since the introduction of the so-called conditional financing of scientific research in the eighties and the advent of special committees in the system of evaluating scientific research.

An important tool in the evaluation of articles are the so-called quotation indexes. These indexes are based on the quotation frequency of articles and on the reputation of the magazines in which they are cited. Bibliometry, of which these indexes are a basic element, has even grown into a separate discipline. As a result, scientific journals tend to become a separate factor in the evaluation of academic research programs. Oddly enough, those who are in favour of the current scientific journal regard this factor as the main argument for its continuing existence. But have we any reason to be content with the present state of the scientific periodical?

We are all familiar with the adage 'publish or perish' and we have noticed the growth in the number of scientific papers effectuated by it. As a consequence of this growth, the existing system is impeded by considerable problems and bottlenecks. (Waijers, 1996)

1. The system is sluggish: it takes at least six months, sometimes up to a year and a half, before a submitted paper is actually published.
2. There is increasing doubt about the system's reliability, particularly since reviewers may take advantage in view of their prior knowledge.
3. The system is becoming unaffordable because of enormous price increases that sometimes supersede the general price index. These price rises lead to the cancelling of subscriptions which in turn cause new increases, eventually evolving in almost monopoly-like situations.

It can no longer be denied: the current scientific magazine hardly deserves the title of communication medium if one considers the amount of time that elapses between the submission and publication of an article.

Of course, the scientists themselves have acknowledged this. They are beginning to publish their preprints on the Internet. In fact, an article's eventual publication in a magazine has become more of a formality during which a quality certificate is assigned a posteriori. In

response to this course of events a number of publishers have declared their intention to obstruct the electronic distribution of preprints simply by introducing new copyright rules. In other words, if you want to submit an article to a magazine you must first agree not to diffuse an electronic preprint version.

It is the world turned upside down: publishers of scientific magazines who are inhibiting the exchange of information among scholars. Scientific intercommunication becomes marred by the journals' continuance. The magazine would thus deny its original *raison d'être*.

What are the prospects, the future scenarios for scientific periodicals? In the first place, there are journals available in an electronic as well as in a paper version. In a period of transition this may be useful because it allows publishers and researchers to acquire a certain degree of experience. In the long run, however, this will lead to a superfluous duplication of efforts. Secondly, exclusively electronic magazines are emerging. They involve procedures similar to paper journals, but require a much shorter production time.

The next step, one that has already been taken in several places, is this. Universities and other 'learning societies' are installing document servers to make publications available on a global scale. Having started as preprint distribution, some of these initiatives are evolving into electronic archives of complete scientific disciplines (Ginsparg, 1994; Odlyzko, 1995). Eventually they could develop into the effective and efficient system described by Leo Waaiers (Waaiers, 1996). As soon as an article is completed it is made available on one of the servers mentioned, where it is stored carrying its publication date as a feature. It is accessible to everybody. And everybody can print it, refer to it or quote from it, while the copyright is the authors'.

The publications can be evaluated and commented upon, even revised versions can be issued. Every publisher can select any article he wishes and publish it in an electronic or paper journal. For readers who prefer a qualification this selection would be the equivalent of a certificate. The most significant difference with the present situation would be swifter communication and a quality selection afterwards.

Let us now return to what we have affirmed as the added value brought in by the publishers, i.e. distribution and certification. In view of the aspects mentioned above it has become clear that these functions could be taken over effortlessly by the universities at least in part, and perhaps even entirely. A new and more efficient task distribution in co-ordination with the publishers could result from this competitive approach.

4. Conclusions

I began this article by drawing your attention to the relativity of our starting point. I hope I have succeeded in demonstrating this through referring to the history of the scientific journal. Sceptical readers could object to my argumentation, stating that the scientific magazine is an exception. They could point to the unlimited, eternal value of the book as a carrier of information. However, they may also find it interesting to know that scientists at MIT are researching the feasibility of a book that consists entirely of blank pages. This book needs only to be connected to a docking station in order to charge it with text and illustrations within minutes. Its contents are to be determined by the reader via a computer. The result is a tailor-made book, not on a computer screen but on paper-like material: light, easy to carry around, ready to be read at any place and at any time. At the end of the day this book could easily be erased, replacing the old content with a new one. In this development only the format of the book is being adopted. In the end, however, it could result in the advancement of other, preferable formats.

We are engaged in devising and shaping our future. Nevertheless, I would like to stress that these conceptions are but comparatively simple extrapolations of present technological applications. We tend to regard ourselves in this context as objective beholders as well as interpreters. We observe a certain development and wish to deploy it to improve control of our environment.

This is a somewhat one-sided contention. It is illusory to assume that we are independent onlookers, in no way related to any development or reality as such. The developments mentioned are not occurring autonomously: we are all part of it (Wierda, 1996). A clear example of this is the way Western civilisation has been determined by script and print. They form the base for our preoccupation with linear, printed text and of our predisposition for related communication devices. In other cultures oral tradition, sound, music and dance play a far more important role than the written word (Kersenboom, 1995). One can not rule out the possibility that our culture could change as a result of the increasing influence on our lives exercised by multi-media communication. The sweeping changes brought about by this trend could well extend beyond the diffusion of scientific magazines or the shape of books. Therefore we must realise the relativity of the present situation as well as the relativity of our position.

I shall not allow myself to be tempted by further speculations on the future, simply because we do not know what it will bring.

In view of the present relationships and our comparatively short-sighted expectations we have, of course, plenty of reason not to fence in those who are engaged in the trade of information processing. I would therefore plead for a phase of chaos, that being the right transitional stage on our course to a new order.

We should allow for a situation in which the present parties linked in the information chain make flexible arrangements in relation to several functions. They should not shy away from trespassing on each other's traditional territory, since this will facilitate learning from each other and improve the process.

To some, this may seem to be a somewhat menacing prospect. But why must the cobbler stick to his last when very soon there may be no more need for shoes?

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