

## **E-COMMUNICATION AND THE INTERNET USE IN THE PHARMACEUTICAL INDUSTRY**

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### **Abstract**

In this paper the role of e-communication and the impact of Internet on the pharmaceutical industry is described. The Internet use in e-publishing, e-research, e-clinical trials, e-submission, and e-commerce is presented by foreign and Hungarian examples. The paper lists some characteristics, that make the adaptation of this new technology difficult in this industry.

*Keywords:* e-communication, Internet, pharmaceutical industry.

### **1. Introduction**

By the new millennium the challenges of the e-world have visible impact on the pharmaceutical industry, which is not considered to be pioneer sector adapting the Internet technology. Due to the special characteristics of medicines – strict regulations and the insecurity of e-commerce – pharmaceutical players have to overcome several difficulties to be able to take the advantages lying in e-communication. Compared to other sectors<sup>1</sup>, the pharmaceutical sector is not the ideal area, where the result of the new technology can easily be applied.

The marketers' relationships with their customers, business partners, suppliers, and environment have remarkably changed with the application of the e-communication tools. The aim of this paper is to introduce some interesting examples for Internet use in the pharmaceutical industry, focusing on the Hungarian pharmaceutical market. With the selection of examples I would like to note the possibilities and the barriers of the e-communication in this market.

### **2. E-Communication, e-Publishing**

After the liberalization of the Hungarian pharmaceutical market, with the appearance of the multinational pharmaceutical companies, the competition became

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<sup>1</sup>see [3]

stronger than ever. Within this competitive environment, e-communication started to play a significant role. While most of the companies abroad have already established their websites for different goals – to be informed through the Net, to inform their customers and other partners, to commercialise products through the Net – the ones in Hungary still pay little attention on their own Internet appearance. The reason for this lack of interest can be, that after the privatisation, the Hungarian pharmaceutical firms lost their independence and their foreign investors only mention these subsidiaries on their own websites as the mark of their global existence.

The Hungarian market leader – with foreign financial investors in the background – *Richter Gedeon Rt.* is an exception. According to a study made by Carnation Research in September 2000 about the 100 largest firms in Hungary, the company's recently renewed website – [www.richter.hu](http://www.richter.hu) – is among the first 10 websites.

*Table 1.* The 10 best websites

Company	Website
Pannon GSM Távközlési Rt.	<a href="http://www.pgsz.hu">http://www.pgsz.hu</a>
Westel 900 GSM Mobil Távközlési Rt.	<a href="http://www.westel900.net">http://www.westel900.net</a>
Magyar Légiközlekedési Rt.	<a href="http://www.malev.hu">http://www.malev.hu</a>
Matáv Magyar Távközlési Rt.	<a href="http://www.matav.hu">http://www.matav.hu</a>
Opel Magyarország Járműgyártó Kft.	<a href="http://www.opel.hu">http://www.opel.hu</a>
IBM Storage Products Kft.	<a href="http://www.hu.ibm.com">http://www.hu.ibm.com</a>
Ericsson Magyarország Kft.	<a href="http://www.ericsson.hu">http://www.ericsson.hu</a>
Richter Gedeon Vegyészeti Gyár Rt.	<a href="http://www.richter.hu">http://www.richter.hu</a>
Szerencsejáték Rt.	<a href="http://www.szerencsejatek.hu">http://www.szerencsejatek.hu</a>
Magyar Posta Rt.	<a href="http://www.posta.hu">http://www.posta.hu</a>

*Source:* [www.carnationresearch.hu](http://www.carnationresearch.hu), September 2000.

The evaluation of the survey used seven criteria – content, function, transaction possibilities, interactivity, navigation, design, and technique – with different weights. The Richter website is excellent in the field of information content. It has also pages in English and Russian, it communicates detailed information illustrated with photos and interesting articles.

Beside the corporate websites another very important tool for companies to communicate toward the customer is creating health portals. The basic goal of these websites is to inform patients and physicians about health care, new drugs in the market, etc. To create a website for this purpose is the less cost needed way of e-communication, however, companies in the pharmaceutical industry invest less than 3% of their overall marketing budget on websites and health portals<sup>2</sup>. The key problem of this kind of communication is that the information should be

<sup>2</sup>see [1]

relevant, reliable, and authentic while the control of information on the Internet is very difficult. For example the [www.healthfinder.gov](http://www.healthfinder.gov) site has been developed by the U.S. Department of Health and Human Services in collaboration with other federal agencies. It leads the visitor to select on-line publications, clearinghouses, databases, websites and supports self-help groups, as well as government agencies and not-for-profit organisations that produce reliable information for the public. The website was established in 1997 and it has been visited 1.7 million times even in the first year.

The Hungarian health portals are not developed by the government, and the question of reliability should be considered.

### 3. E-Research

Internet is also an important information source for the researchers. Obtaining information through the Internet about the latest scientific results, is fast, easy and relatively cheap. For example on the Net the researchers can find information about each other's scientific studies and about all drugs in the market (National Library of Medicines – [igm.nlm.nih.gov](http://igm.nlm.nih.gov)). On the website [www.chemweb.com](http://www.chemweb.com), you can search in 32 different chemical, biological, and medical databases, and you can find also databases which contain the patents in this field. The IMS Health Research Reports give useful information to every participant in the industry, and drug producers and wholesalers use these market trends continuously for developing their own market strategy. Internet has opened new possibilities in the pharmaceutical Research and Development processes. It is well known that developing a new drug is extremely costly and time-consuming. Estimating the cost of R&D and the introduction of the new drug into the market, we can say, that it is between 300-600 million USD<sup>3</sup>. An example of shortening the time of drug development with the help of Internet, can be read in *Heti Világgazdaság* recently (14 Apr 2001). The Computer Drug-Research Centre at University of Oxford coordinated the project together with an American software company, the American Cancer Research Foundation and Intel. The aim of this project was searching 250 million molecules with computer modelling. The researchers try to find those 100 thousand molecules which might be effective against some proteins that are responsible for cancer spread. This research needs 24 million computer hours. For these calculations the researchers ask for the help of PC users connected to the Internet. The user can download a programme which is active when the user is online, using the web for any purpose. This programme utilizes the free capacity of the PC and is searching 100 molecules. Next time, when the PC connects to the Net, the results of the research get back to the researchers who will finally analyse the data.

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<sup>3</sup>see [2]

### 3.1. E-Clinical Trials

Internet has a big impact on the relationship between the physician and the patient who take part in clinical trials. For example with the help of a software, Phase-Forward (an American software company) can reduce the time needed for clinical trials<sup>4</sup>. The InForm NetDiary programme reminds the patients automatically to report information about their physical conditions. Uploading the data onto a server, the information is available for every participant, sponsor, researcher. The information is accurate, prompt, and with this programme continuous monitoring of a patient becomes possible. Faster data analysing and more accurate decision making are other advantages of this system. Today, to bring a new drug into the market takes 7–9 years. PhaseForward hopes, that via this software, this period can be reduced to 1–2 years.

The role of alliances is important in clinical trials on the Internet. For example lifechart.com is a result of the joint-venture between Johnson & Johnson and Nokia. This website provides wireless disease management tools for patients to self-monitor chronic conditions such as asthma and diabetes<sup>5</sup>. The website is suitable for clinical trials, since patients and physician both can access the site.

Web-based clinical trials do not only reduce trial time and cost, but have a significant role in e-compliance. Compliance in healthcare means the proper cooperation between the physician and the patient for the aim of an effective treatment. E-compliance tools remind patients of their medication routines, including what drug to take, when, and at what dosage. They also monitor their health status, encourage patient compliance and alert physicians to problems. These e-compliance tools can be used via the Net, or via any other e-communication tool, network. For example some tools can be downloaded from the Internet. With the help of a special shirt the patient can be monitored and the results can be transmitted through a computer onto the Net, where the physician can follow the patient's condition. The characteristics of e-clinical trials are seen in *Table 2*.

Another advantage of the e-clinical trial: the information is available for all participants in the clinical trial.

## 4. E-Submission

The registration process of a new drug will slowly change to electronic way. In the USA the first FDA (Food and Drug Administration) approval following an electronic submission was for Pfizer's Viagra in 1998. The approval was granted in almost half the time it takes for submissions on paper, enabling Pfizer to get the product onto the market faster<sup>6</sup>.

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<sup>4</sup>see [10]

<sup>5</sup>see [1], 6

<sup>6</sup>see [1]

Table 2. Centerless clinical trials can streamline clinical and patient processes

Current trial technology can	Future trial technology will
<ul style="list-style-type: none"> <li>• Book appointments.</li> <li>• Remind patients to visit the doctor.</li> <li>• Manually follow treatment regime. Between 30 and 60% of patients fail to comply.</li> <li>• Manually enter data in the case report.</li> <li>• Recall patients if there are corrections</li> </ul>	<ul style="list-style-type: none"> <li>• Automate health status monitoring, including compliance monitoring.</li> <li>• Automate therapy management for conditions or visit doctor when required.</li> <li>• Collect and check information in the case report form in real time without recalling the patient.</li> </ul>

Source: SCRIP Magazine, January 2001. p. 14.

In Hungary since the end of 1996, at the regulatory authority OGYI (Országos Gyógyszerészeti Intézet) it is available to use the electronic submission. The first e-submission was presented by SmithklineBeecham for Augmentin in March 1997. Since 1999 OGYI accept '.html' type document for approval.

According to a survey made by SCRIP [1] the main business drivers and advantages of e-submissions were ease of distribution, archiving, ease of use, faster time to market, better communication, improved efficiency, and harmonisation of registration procedure.

At OGYI the e-submissions have priority over the traditional submissions because of easier handling, better archiving. However, the Hungarian law requires also the paperbased submission over the electronic version.

Table 3. E-submissions in Hungary

		Submission	Medicine
Ongoing		15	28
Settled	Approved	19	33
	Cancelled	4	6
	Turned into paperbased	1	2
Refused		0	0

Source: www.ogyi.hu 18.08.2000.

Until August last year, all the approved e-submissions in Hungary were presented by foreign companies (the leaders were in this field: SmithklineBeecham, Berlin Chemie, Bayer) or Hungarian distributors of foreign companies like Bayer Hungaria, Pharmacia Upjohn Ltd. Budapest.

## 5. E-Commerce, e-Procurement

Compared to the use of e-communication techniques mentioned earlier (e-publishing, e-research, e-submission), using e-commerce is a more complex task. In the pharmaceutical industry regulations build up several barriers for the companies.

In most of the countries pharmaceutical trading through the Internet is prohibited. In USA, in the Netherlands and in Great Britain OTC drugs (without prescription) may be openly commercialised, e-commerce of prescription drugs is limited and goes under strict circumstances. In the third group of countries the e-commerce for prescription drug is prohibited, for OTC is allowed<sup>7</sup>. The website [www.drugstore.com](http://www.drugstore.com) is just one example for online pharmacies. The website [www.medstoxx.com](http://www.medstoxx.com) tries to provide services for hospitals, distributors, manufacturers and consumers. The MedChannel technology company focuses on optimising the medical supply chain with building a optimizing healthcare network to provide technology and value-added services to increase efficiency, to drive value and to reduce costs for all participants in the healthcare industry. So the key factor in e-commerce in every industry is reducing costs. However, a KPMG/Economist survey showed that pharmaceutical companies were doing little in the way of Web-enabled supply chain management (e-procurement), largely because procuring supplies online may only reduce their costs by 1%, much less than in the motor industry, for example<sup>8</sup>. In spite of this fact I see more possibilities in the electronic way of business-to-business transactions than in business-to-consumer transactions in the pharmaceutical industry.

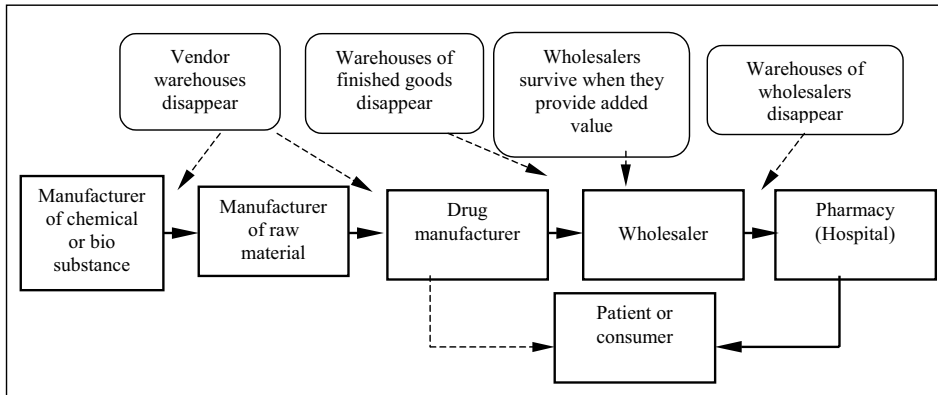
The impact of Internet on the supply chain has reached also the Hungarian pharmaceutical market at least on a theoretical level. According to László LOVAS (Medimpex Rt.), the most important change may occur in the information flow of the supply chain. Since all the data will be electronically formed, the information about the consumer (drug ordering, drug consuming), who is at the end of the chain, could be reached by the manufacturer, who is at the beginning of the chain. Another important transition might be in the future the disappearance of warehouses (*Fig.1*).

With the help of Internet, direct relationship may be between the consumer and the drug manufacturer. Creating this new way of drug manufacturing and distributing instead of the traditional way, will give many tasks for supply chain management. For example the information about the consumers is not integrated in the chain yet. The heterogeneous characteristics of medicines bring up also difficulties for the revolutionary change.

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<sup>7</sup> see [4]

<sup>8</sup> see [1]



Source: simplified scheme from Lovas (2000)

Fig. 1. The impact of Internet on the supply chain of pharmaceuticals (Source: simplified scheme from LOVAS (2000))

## 6. Summary

This paper is dealing with different Internet applications in the pharmaceutical industry, emphasises the impact of Internet on R&D, clinical trials, regulatory approvals, and on the supply chain. It brings examples for Internet use in these fields world wide and in Hungary.

Generally, compared to other industries (telecommunication, finance), pharmaceutical companies invest less on e-communication techniques. The reasons are complex. The pharma sector itself is extremely cost needed already, so the risks of new technologies must be heavily considered. The special characteristics of medicines also bring difficulties in applying e-communication and even more so, using e-commerce. On the other hand, for example e-procurement reduces pharmaceutical companies' costs much less than in other industries. I think that Internet may change the clinical trials most effectively and successfully, the examples mentioned in this paper are convincing.

In Hungary, the e-communication in the pharmaceutical market is in its childhood. The results in e-submissions are remarkable.

The advantages of the Internet are still unutilised, and in the pharmaceutical industry there are more problems to solve. Adapting the new technology, the characteristics of this sector must be carefully considered.

## References

- [1] BEYNON, K. – LAW, J., Pharma takes to the Web, *SCRIP Magazine*, February 2001. pp. 56–57.
- [2] JANKÓ, Á. – SZALKAI, ZS., User Involvement in Drug Development, *International Summer Academy on Technology Studies*, Deutschlandsberg, July 8-13, 2001, Conference Proceedings p. 267.
- [3] JANKÓ, Á. – SZALKAI, ZS. – VERESS, I., *A technológiai fejlődés hatása a vállalati kapcsolatok rendszerére: az e-kommunikáció szerepe egyes vezető szektorokban*, (The Impact of Technology Development on Enterprise Relationships: the Role of e-Communication in Some Leading Industries in Toward the Advanced Economy), A fejlett gazdaság vonzásában, BMGE Gazdaság- és Üzletpolitikai Tanszék, Stúdium Kiadó, 2001, p. 151.
- [4] LOVAS, L., Egészségügy-gyógyszerügy egyes kérdései az Internet világában. (Some Questions about Health Care and Medicine in the World of Internet), *MAGYOSZ Konferencia*, (Conference held by the Hungarian Pharmaceutical Manufacturers Association), November 8, 2000.
- [5] Össznépi rákkutatás – Mindent bele!, (International Cancer Research), *HVG*, April 14, 2001, pp. 43–44.
- [6] RAJYAGURU, I., When Life Becomes one Big Trial, *SCRIP Magazine*, January 2001. pp. 13–15.
- [7] TUDOR, B., Gearing into B2B, *Pharmaceutical Visions*, 2000 Winter, pp. 10–16.
- [8] [www.carnationresearch.hu](http://www.carnationresearch.hu)
- [9] [www.ogyi.hu](http://www.ogyi.hu)
- [10] [www.pharmabiz.com](http://www.pharmabiz.com)