

# THE INFORMATION TRIPLE JUMP AS THE MEASURE OF SUCCESS IN ELECTRONIC COMMERCE

BY TOBIAS KOLLMANN\*

Electronic commerce is on the way! The growth of worldwide data networks is opening an enormous potential for commercial transactions in virtual marketplaces. Now that the Internet and other on-line services have grown so rapidly, business activities aided by electronic communications and information technologies (IT) have apparently become the wave of the future. The ability to transcend space and time is opening new means of coordinating supply and demand (Kollmann 1999). In that sense the Internet is an all-purpose medium for advertising, selling, and information. The 0/1 bits, the smallest information units in this worldwide communications medium, are transferred almost instantaneously from A to B. Electronic information on supply, demand, and competitors, effectively per mouse click, are now understood as basics on the virtual market. For the enterprise's part the gathering and management of information has become the key to the success of an intelligent entry into the market using the electronic media. Practical examples show how such information management can be arranged in the framework of electronic commerce.

## THE SIGNIFICANCE OF INFORMATION MANAGEMENT

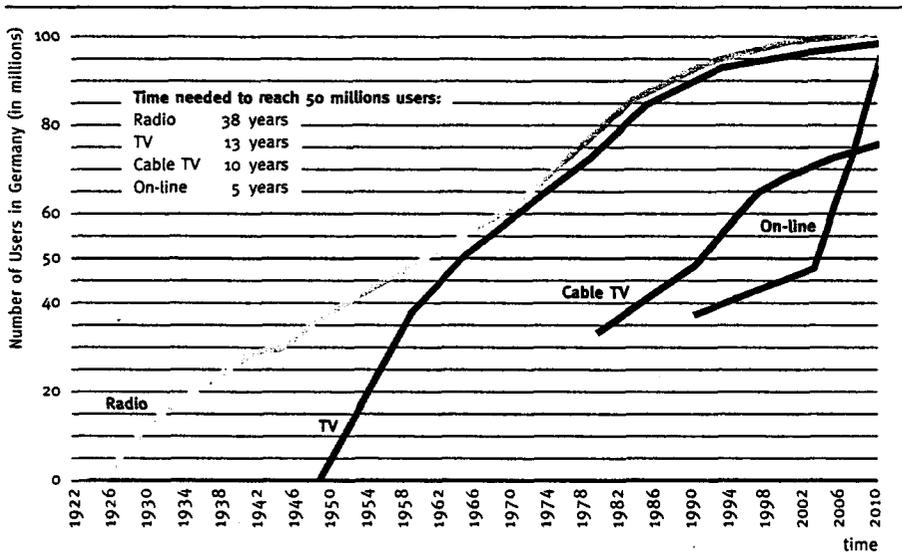
As an outgrowth of the continuous improvement in the information technologies since the beginning of the 90's, the development of the resulting data networks is showing the way into the Age of Information. The corresponding communication and information technologies are characterized by such buzzwords as on-

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Figure 1  
Development of On-Line and Traditional Mass Media  
Source: Morgan Stanley Technology Research

line service; interactive television; the Internet, or Worldwide Web (WWW); interactive multimedia (IMM) systems; and information systems (IS). Despite the many technical and legal problems, e.g., data transfer rates and secure payment means on the technical side and property rights and questions of liability on the legal, visionary sales managers hold the opinion that the "business of the future" will occur via digital data channels in the form of so-called "electronic commerce." In anticipation of this commercial revolution, the business world is planning for the expected boom in economical, quick, and anonymous transactions in worldwide market arenas (Spar/Bussgang 1996). Even though these visions haven't come close to being realized, the development of Internet-based and other on-line services shows that, when compared to traditional media, we are indeed beginning this promising revolution and are marching slowly but surely toward the new business world of data networks (see figure 1).

As a direct outgrowth of the development of digital data and information networks, information can be sent and received nearly instantaneously from one point to another within these networks. Thus, there has been a change induced, from an anonymous mass economy to an individual molecular economy. By means of the special addressing of individual communications, an enterprise can contact each potential customer directly and interactively. Such interactive contact is thereby independent of the limitations of space and time. Accordingly, the discussion has shifted now to the notion of the "global village." This means that contact with other participants in the market is no longer a question of distance in space or time; it is rather one of arranging quasi-personal contacts. Such contact is set up through the exchange of information: the enterprise offers information on its products and services, and the potential customer picks the desired information selectively from this offering. The variety available in this respect in the Internet (WWW) for presentation is especially broad:



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- ◆ Goods and services can be sold via the Internet around the clock (supply of goods and services).
- ◆ Company and product presentations can be appropriately structured (supply of information).
- ◆ Contact with existing customers can be maintained, and new customers can be gained (demand for information).
- ◆ Contacts can be much more directly, discretely, and effectively handled (exchange of information).
- ◆ New marketing channels and offerings can be defined (processing of information).

Alongside actual product offerings, the presentation possibilities offered in the information channel "Internet" demonstrate that the use of existing and newly developed information is becoming an important competitive factor. The success of the Internet as a platform for electronic commerce is being decided in enterprises which manage the information obtained there!

**INFORMATION  
AS A COMPETITIVE FACTOR**

Developments in information technology have changed the manner in which competitive advantages are achieved today. In order to assure the survival of businesses in the market, it is of fundamental importance to them to offer successful products and/or services. For an actual product offering as a rule a clear strategy was followed which had as its goal either price leadership (cheaper) or quality leadership (better) (Porter 1980). Price and quality can therefore be identified as elementary success factors of the product offering. Recently two further success factors have emerged, which can be described as time (speed) and flexibility. They do not replace cost and quality; rather they exist along with them and precipitate as the adaptability rate of the enterprise. The enhanced dynamics of the market require increasingly short adaptation times in businesses; otherwise the danger of loss of profits exists. In other words the opportunity costs of delayed reaction to changes in the mar-

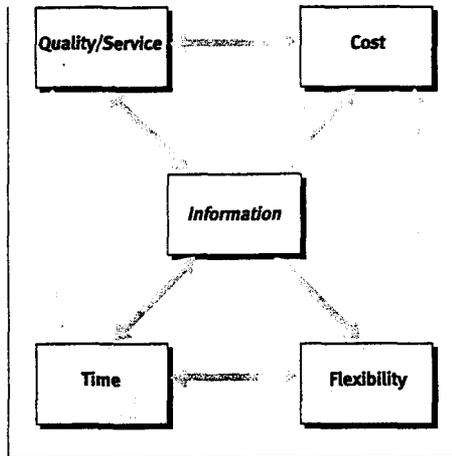


Figure 2  
Information as Competitive Factor  
of the Future

ket are higher, thus explaining why time and flexibility have become important sources of competitive advantage (Ali/Krapfel/LaBahn 1995).

Although information for directing operational performance processes has to be viewed as fundamental, it is difficult for businesses to see it as a classical production factor because the processing of information alone can't physically produce goods and services for the real market. This is, however, changing dramatically as a result of the development of digital information channels in the framework of the Internet. The revolution in information technology will further lead to the widespread economic use of information as a production factor (Weiber/Kollmann 1998). The exchange of information in the virtual data network involves more than just a two-sided, interactive relationship between a supplier and a buyer; it lays rather the foundation for worldwide connections between suppliers and buyers independent of their geographic locations. By setting up networks of communications channels, it is becoming steadily simpler to place, offer, find and access, and exchange information for specific purposes at specific points in the networks. While to date in real markets information assumed only a supporting function for physical production processes, it will become in the future a separate productive

and competitive factor (see figure 2). The reason for this is that through the gaining, processing, and transfer of information, the efficiency of the operational performance system as well as the effectiveness of entrepreneurial activity in performing in the market are enhanced. Thus, information influences the basic dimensions of the competitive advantage viewed from the standpoint of efficiency and effectiveness. (Drucker 1973; Day/Wensley 1988).

**THE INFORMATION TRIPLE JUMP**

Businesses which risk entry into the digital and interactive world of the Internet should have mastered the techniques of managing information, i.e., they should be aware that the placing of a homepage alone does not constitute an information strategy. What is called for in the enterprise is an intelligent total system for information processing, both inside and out. This means that the information arising out of interactive communication with a potential buyer or customer must be also used effectively in the business' internal processes. For this reason, information management with the new medium "Internet (WWW)" consists of three steps, i.e., the obtaining, processing, and transfer of information.

In a first step the attempt should be to ascertain, by means of the interactive contact with the potential buyer, relevant information about the needs of the market. Following a systematic evaluation of this information input the internal processing of the information occurs, i.e., the data are integrated into the enterprise's systems with the purpose of improving the real product offering. Furthermore, along with its use in real products the information can be used as a competitive factor in determining future business strategy, since developing tendencies in the market are directly observable as electronic user trails. With such means, the use processes on the potential buyer's side assume a position in the middle of the analysis (Kollmann 1998). Once the information has been used in improving the real product, the busi-

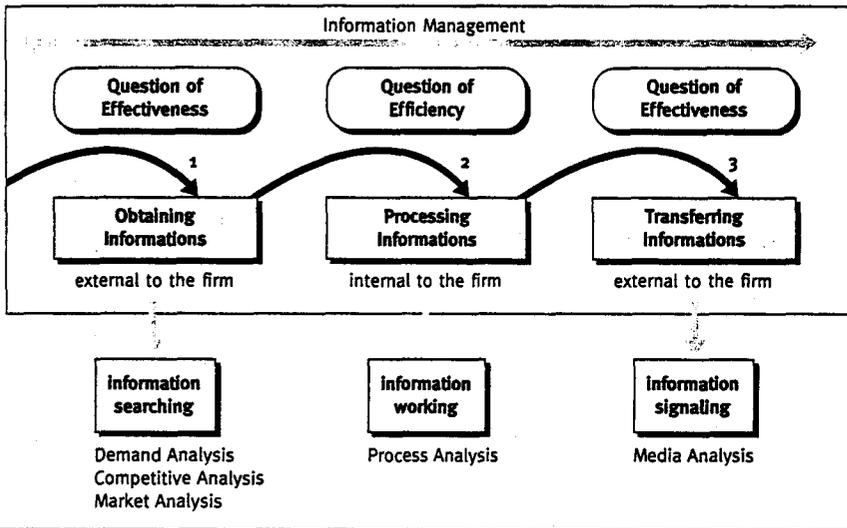


Figure 3  
Information's Triple Jump  
into Electronic Commerce

From the business' point of view it is accordingly crucial on the one hand that it is successful in obtaining more and better information on the demand side than its competitors do (i.e., analyses of demand, markets, and competition) in order to offer more successful products more effectively. On the other hand it is important to offer better information to potential buyers (media analysis for the purpose of communicating more effectively with them. Thus, information can be interpreted as the "engine of competition" in future markets because it affects both the real market (primary factor) and the virtual market (secondary factor).

Unfortunately there are still barriers to comprehensive information management using new media to be seen. One reason is that decisionmakers in business function without a firm relationship to electronic data processing and, when confronted with the need to use new media, have only a short-term return on investment (ROI) in mind. Furthermore, the notion of dismantling existing commercial structures and

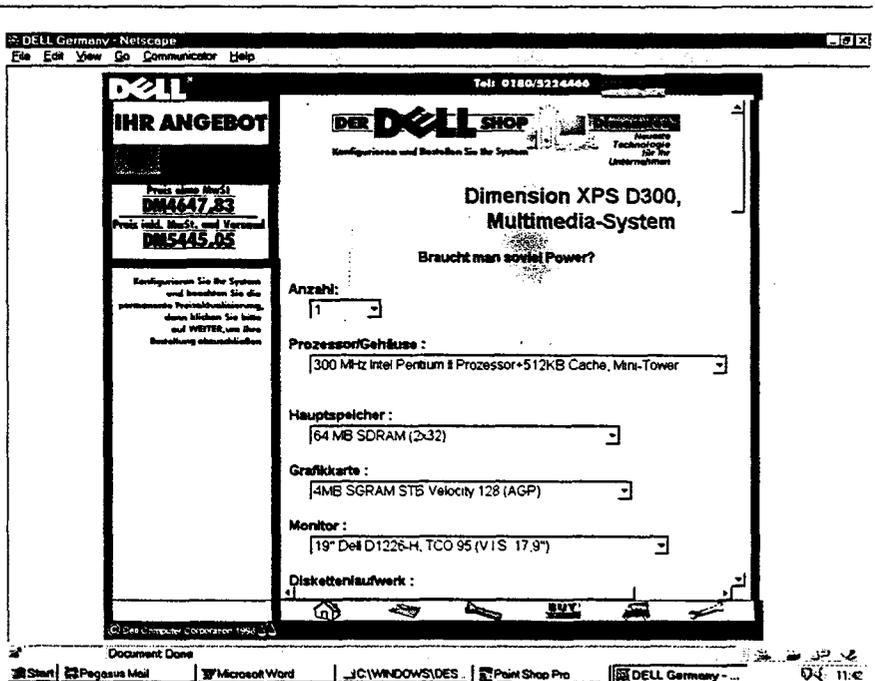
ness' interest turns accordingly to the effective transfer of information in the form of communication of the improvement in the product/service. If all hurdles on the way to this ideal process can be taken successfully, one is speaking of an effective triple jump into electronic commerce (see figure 3). The possibilities inherent in electronic commerce stem from an effective union of the new information channels (Internet), the understanding of the interpretation of information as a competitive factor in and of itself, and the adapting of the enterprise's internal performance to the external information flows from digital data channels.

This triple jump in the use of information opens manifold possibilities toward improving the effectiveness and efficiency of the business' products and services:

- ◆ Improved efficiency in internal operations processes:
  - More cost-effective structuring of internal processes using various information technologies
  - Information for the improvement of product and production planning
- ◆ Improved effectiveness through the transfer of information:
  - Improved perception of the product's advantages
  - Self-selected, actively evaluated, relevant, individually desired information

- ◆ Improved effectiveness by gathering information:
  - Information about the needs and views of potential customers
  - Realization of a product and service offering tailored to individual needs
  - Active use of customer information in product design

Figure 4  
Gaining Information using the  
"Built-to-Order" Concept (DELL)



becoming active on the consumer front appears questionable to managers because a specific enterprise might not have relevant experience at the time. Thus, half-hearted entries into the Internet (the homepage syndrome) are often undertaken. The mere setting up of a homepage with the use of textual material or a copy of the product catalog (one-sided information management) represents a high risk of loss. Against this background businesses should introduce a comprehensive information management system consisting of all three information jumps. Just how successful companies have already been in practice can be seen from the following examples.

#### THE FIRST JUMP: GAINING INFORMATION (DELL COMPUTER)

The firm DELL Computer is a producer and seller of computer hardware components and operates worldwide. With its broadly based Internet entry ([www.dell.de](http://www.dell.de)) the company attracted much attention in the industry, certainly in no small measure because of the success it met. Especially in the area of gaining information DELL had as its goal simplifying the business relationship between customer and supplier, achieving cost reductions on both sides through the use of digital communication in the Internet, and the extension of direct customer relations. For this purpose the company provided interactive communication functions which allow each individual customer to "assemble" his or her dream PC and order it directly (see figure 4).

The "Built-to-Order" Concept affords DELL in two senses a tight system for obtaining information. In the first sense the firm uses the information from the individual PC orders to adapt its standard packages for the general market, and in the second DELL has obtained data on the current needs of the market. Thus, the Built-to-Order Principle represents an effective sales concept due to its easy, direct connection to the customer, its reduction of support costs, and the possibility of its having made the customer more loyal.

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DELL is executing the information triple jump rigorously - with emphasis on gaining information: Individual information is obtained via interactive communications modules, evaluated within databases, used in real product offerings, and via standard packages or adapting bids of components recomunicated.

#### THE SECOND JUMP: INFORMATION PROCESSING (LIBRI.DE)

libri.de, a service firm in the publication industry, is a media wholesaler (books, CDs, videos) working exclusively in the Internet ([www.libri.de](http://www.libri.de)). Books and software, in comparison to other product categories, can be sold relatively well via the Internet, even though classical mail order houses and startups from outside the industry are still dominant. The problem for individual stationary retailers is, however, insufficient know-how in contract administration and logistics, such that because of the relatively low sales volumes they cannot support their homemade solutions. Accordingly libri.de is attempting to structure an Internet-based interface between wholesale and retail.

Here too it can be seen that an interactive ordering module alone still cannot offer the retailer any meaningful advantages since the entire automation and evaluation of the order information in the back office area was missing. While obtaining information in the industry via the relatively simple ordering process did not give rise to problems as a rule, information processing presented a bottleneck. With this as background libri.de offers stationary booksellers a comprehensive information triple jump. Through the linking or setting up of individual homepages, obtaining information can be regionally structured and adapted to the needs and desires of each bookseller. Thus, a specifically structured information entry is made available, by which the bookseller can decide which books he will offer (individual freedom for decisions; setup of conditions; customer management). Gained via the interactive order and information module, the information on the the cu--

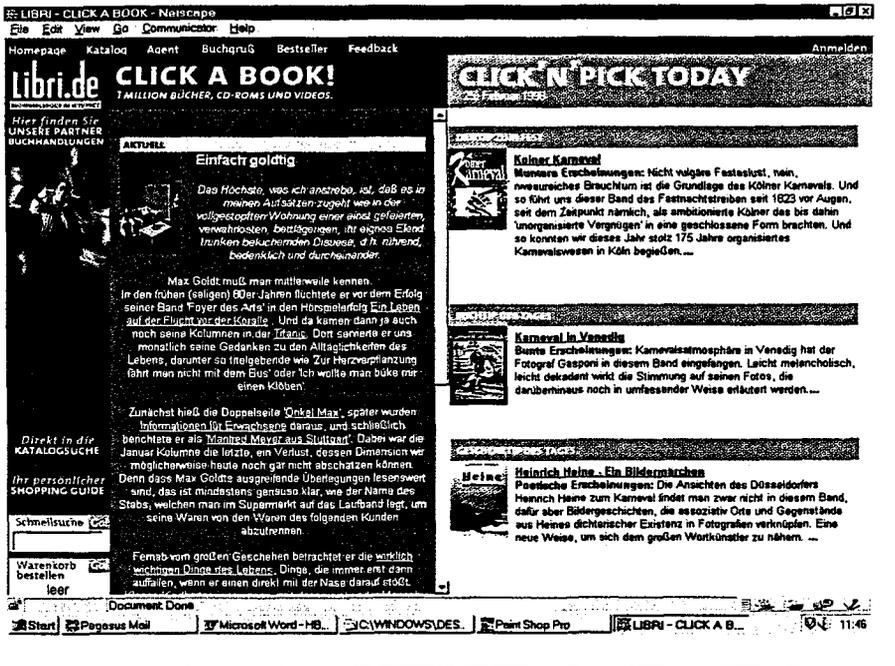


Figure 5  
Information Processing using the Database Concept (libri.de)

The Lufthansa customer "subscribes" by registering for information on specials or last-minute trips (news on demand). As consideration Lufthansa receives information on customer preferences and the typical reactions of potential customers. Using such information, individually selective, current information can be sent to the customer. This is realized through NewsFlash. At times defined by the potential buyer, a multimedia NewsFlash appears on his or her PC screen, even in off-line applications (e.g., in WinWord). By a click-on the InfoFlash expands into a full page information table with the possibility of booking directly. Because the time of interruption is determined by the customer, this push-technology achieves a high degree of recognition without the advertising's being perceived as negatively interruptive. With this means Lufthansa hopes to get to the customer with its offering faster than the competition and, as a result, to realize time and cost advantages. For his or her part the potential customer receives travel offerings which are exclusively tailored to individual selection criteria, are directly available, and amount to savings of time and cost.

stomers', i.e., the market's, needs are transferred on-line to libri.de. Here the data are entered into a delivery logistics system for the wholesaler and the titles sent either to the bookseller or directly to the customer.

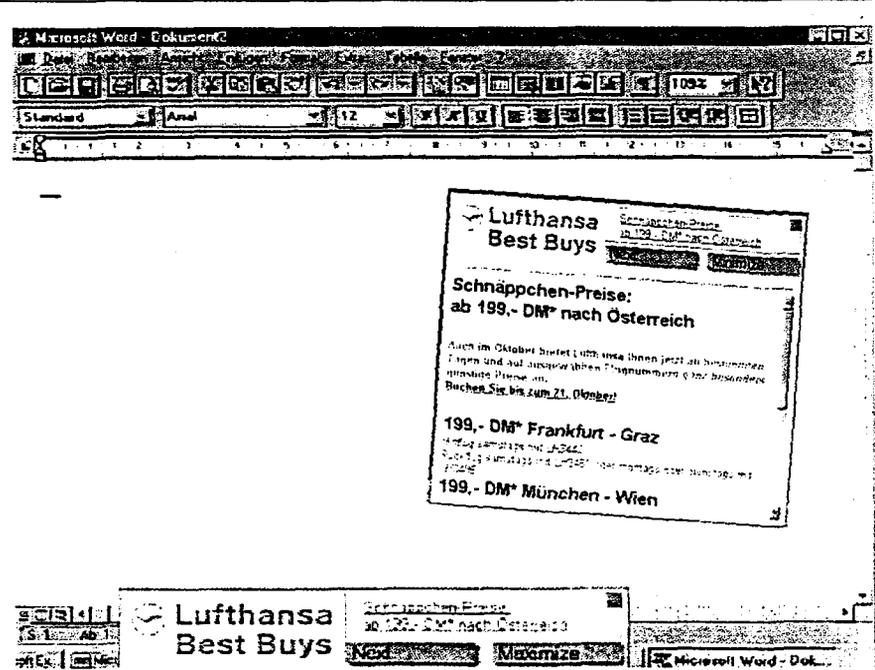
Libri.de is carrying out the information triple jump rigorously - with emphasis on the processing of information - in the following way: The individual bits of information are obtained in this case also via interactive communications and ordering modules, evaluated in databases, and laid out as an information offering (extracts, reviews, etc.) for each of the booksellers. The compressed information is then given back to the booksellers and their customers with the help of daily tips and "virtual agents" for title selections in respect of various themes.

**THE THIRD JUMP: INFORMATION TRANSFER (LUFTHANSA AG)**

Since 1996 Lufthansa AG has been represented worldwide in the Internet with its information medium "InfoFlyway." The development of bookings has been continuously positive, realizing monthly growth rates as high as 30-50%, in four-

figure volumes. Most notably the transmission of current offerings is at the hub of two communication systems, on the one hand the discrete ticket auctions and on the other the continuous NewsFlash. In the ticket auctions empty seats are put up for auction on short notice. Those interested can enter bids for the tickets, and after a certain time interval the gavel falls in favor of the highest bidder. Much more innovative is the continuous NewsFlash.

Figure 6  
Information Transfer using the NewsFlash Concept (Lufthansa AG)



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Lufthansa AG is also rigorously making the *information triple jump* - with emphasis on information transfer: The specific information is obtained via an interactive NewsFlash offer, evaluated within databases, and executed as a virtual information service (customer specific travel offerings). The compressed information is given effectively back to the customer through the help of the push technology "NewsFlash."

#### THE WAY TO SUCCESSFUL ELECTRONIC COMMERCE

Competitive advantage in the markets of the future is shifting from product edges alone to informational advantages. Management of and for information is at the center of the consideration of future entrepreneurial engagement in the virtual data world of the Internet, where it must be added that market development and the pressure of competition will obviate the question of WHETHER OR NOT and force rather the question of HOW. The information triple jump, i.e, gaining, processing, and transferring information, will assume strategic significance for management. Existing processes in the business should be analyzed with an eye to the application of information technologies (IT), whereby knowledge and ability are no longer alone at the top; desire as well assumes a leading role. The practical examples illustrate quite clearly that the use of *information and communication systems* will be just as natural as the use of traditional business structures. There is still opportunity waiting for the entrepreneur willing to make the first move!

ROGER FIDLER

## MEDIAMORPHOSIS: UNDERSTANDING NEW MEDIA\*

REVIEW BY MADANMOHAN RAO  
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"Mediamorphosis" by Roger Fidler is a breath-taking, sweeping overview of communications technologies and their impact on the media through the millenia and in the years to come.

Ten chapters cover a wide range of issues including media evolution and convergence, media traits, digital technologies, Internet publishing, socio-political forces of control, new media experiments, virtual reality, user interactivity, and future trends. A list of acronyms and abbreviations is also included.

Roger Fidler is a well-known electronic publishing visionary and practitioner. He has worked in the newspaper business for more than 34 years. He was the director of the Knight-Ridder Information Design Laboratory, founder of the PressLink online service for newspapers, and a key member of the Knight-Ridder Viewtron videotex service. Roger is currently a professional in residence at Kent State University.

Fidler identifies six principles of mediamorphosis - coexistence and coevolution of media forms, gradual metamorphosis of new media forms from old ones, propagation of dominant traits in media forms, survival of media forms and enterprises in a changing environment, merits and needs for adopting new media, and delays from proof of concept to widespread adoption of new media.

According to Fidler, there are three great mediamorphoses in human communication: *spoken language, written language, and the digital language.* Spoken language led to social group formation, complex problem solving skills, and the development of "broadcast" forms like storytell-

ing and ritual performance. Written language ushered in the development of portable documents, mechanical printing, and mass media.

Digital language - unlike spoken and written - enables communication between machines, and mediated communication between humans. In digital language human distinctions between text, images and sounds are irrelevant. We are in the earliest stages of such transformations, says Fidler - but we can already see "how computer networks using digital language are greatly extending human interactions throughout the world."

Fidlers book covers the technological and cultural contexts of the third mediamorphosis, as well as case studies of successes and failures of new media technologies like online services. The third mediamorphosis was marked by the invention of electricity, the convergence of telegraphy and photography, electro-mechanical and electronic technologies, computers, and networks.

Three chapters sketch out projected scenarios of mediamorphosis in the interpersonal, broadcast, and document domains in the year 2010. Fiddler also addresses some of the promises and challenges posed to media, audiences, educators and governments by technologies like the Internet.

In sum, "Mediamorphosis" is a valuable, insightful piece of work for media analysts and practitioners. A list of online resources and discussion lists would have rounded off the material perfectly. There is also little treatment of issues outside the U.S. and Europe, or about the opportunities for alternative, non-mainstream news media. Still, Fidler has done a great job of putting together one of the first, comprehensive frameworks for charting the evolution and interaction between *media forms in the cyberspace age.*

\* Mediamorphosis: Understanding New Media, Fidler Roger, California 1997, Pine Forge Press, 302 pages, ISBN: 0803990863.