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"How important is the network?"

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Abstract

An important value addition in videotex concerns its interactivity. Making use of interactivity in largely distributed videotex systems is considered a clue to successful results. One aspect of interactivity makes "direct marketing" possible with higher precision than has been possible until now. It is possible to aim specific marketing activities at specific audiences, based on knowledge about the users of the system. This information can be used for "group directed purposes" without harming the personal integrity of the users. The clue to successful videotex is claimed to be to stress those types of applications that really fit the medium. Furthermore, it is discussed the importance of sufficient systems infrastructure investment for successful videotex.

Curriculum

Tomas Ohlin is a researcher and consultant in the field of distributed information services, with specific concern for low-technology market development, like videotex. He is linked to the Institute for Management of Innovation and Technology at the Stockholm School of Economics, and during 1991 consulting for the Swedish TeleGuide project.

"How important is the network?"

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The nature of value addition

Generally, a value added network service (VANS) often relies on communication or database services that add some kind of quality to the original service. This quality may consist of reference to data or services that are relevant to the original service. The concept of "value addition" can be discussed on the basis of a few examples:

- Plain old telephone services (POTS) are often complemented with services that concern number administration, invoice handling, background music while-you-wait, etc.
- Facsimile can be said to have "higher value" than the pure data transmission capabilities it uses. The value addition here is of both technical (data compressing) and administrative nature, often computer-controlled, when store-and-forward functions are included.
- Electronic messaging and computer conferencing contain a number of administrative aids to help handle communication of free-text point-to-point messages between users or more dynamic group contacts.
- Electronic Data Interchange consists of transmission of "form bounded" data (invoices, buying orders etc) between computerized systems. Completion of actual data in these "forms", packing, is done automatically in the sender system, and the unpacking is also done automatically in the receiver system.
- In videotex, reference is being made to database hosts where added services concern teleshopping, telebanking, travel ticket issuing, game playing, public information etc. Important content in these is that they offer, and rely on, fresh data, data that are up-to-date.

Such, and other types of value addition form types of intelligence. Adding possibilities to refer to services of this type adds value, and at the same time some type of intelligence. Adding network service value means increasing network intelligence.

Where are the borders between different VANS? Exactly where does the value addition take place? Whom does the added value concern?

The international OSI model defines levels from basic communication and up to "the application level". There is a need for specifications above this. The OSI level 7 contains support of generic applications of type X.400. Above this one could perhaps discuss three more levels:

Level 8	Specific applications, of type EDI, videotex etc.
Level 9	Time dependant applications, where fresh data are essential.
Level 10	User environment dependant applications

Discussions about different types of value addition may be supported by such partitioning concerning value addition on separate levels. It would be worth while to analyse specially those applications within existing videotex systems that rely on the distribution of fresh data.

Types of applications

During the later parts of the 1980s it has become evident that important parts of the real success on national telecommunication markets have concerned telephony and telephone-related services. This concerns audiotex. It is around such services that there has been, and still is, an increasing demand. However, other new services are expanding: facsimile, cellular telephony, videotex. These "newer" services (although historically old) give examples of value addition that from a technological viewpoint can be said to add a fairly low degree of "intelligence". Briefly, thus, added value is low for services that appeal to to-day's markets.

In spite of this, a substancial part of financial and organizational effort from telecom producers to-day is being put on high-level VANS. This is based on the reasoning that the more intelligence and "technology" one adds to a service, the better are the chances for success for the service. An example: A graphics-oriented ISDN-based service, or a video conferencing service, may with this reasoning for PTTs and others appear as more attractive than a slow-speed electronic mail-based text service, or voice mail.

But this then is not seen from a user perspective.

If demand is not close for high technology, a motive for the telecom producers to still stress "high tech" might concern strategic desires to gain influence over coming networks.

The "high tech in many of to-day's producer oriented efforts concerns higher speed, better graphics, better sound, better security etc. An typical example is HDTV.

To-day's user demand is more application oriented, where the user interface is considered especially important. It is the social surface that is important, including deep contact with usage environments:

- As noted, added quality to local telephone services are popular.
- Market success with EDI needs knowledge about different application environments. EDI is not a general purpose solution to large amounts of computer to computer transmission needs. Rather, it can be seen as methods to automate transmission contacts in different specific branches - different from branch to branch.
- Electronic mail finds users regionally and locally rather than on distance. This is natural because of the fact that people mostly exchange opinions about matters that are well known to them, in some sense local matters. It is no coincidence that a large majority of telephone calls (80 - 90 %) are local. The same reasoning can be applied to text calls, as well as mail.

- Many successful videotex services are of a local nature. They rely on local knowledge of business, travel, pleasure. The successful supplier of videotex services is often locally knowledgeable.
- Facsimile services may add to this. Its further expansion may well be more and more branch oriented.

These examples show a user oriented demand which is local by nature. If this reasoning can be generalized, it would mean that an increasing number of successful intelligent communication services may turn out to be more local than has been stressed in the 1980s. This is in spite of the fact that much telecommunications technology in itself may be "distance independent". If usage is local, the technology will have to adopt.

A conclusion could be that the value addition demand of the 1990:s stresses applications that are local to consumers. Instead of showing an immediate temptation for "colour and high speed", consumers tend to increase their interest slowly from low technology to high, starting where the price is right. If this reasoning is true for the coming years in the 1990s, then many electronic markets will develop from the technological bottom and upwards.

This may not only concern separate value added services, but may also be valid for local networks of value added type.

Types of value addition

Let us be back to the concept of value addition. Added value for a service concerns some type of added intelligence, in some sense relations to "outside" services. These services can contain added facility for communication or for computation.

Unfortunately, there are no sharp borders that separate different forms of value addition from each other. However, different types often are connected to different degrees of predefinition in time.

One can regard increasing value addition on a scale where what is added is less and less predefined.

In such a model, the highest degree of value addition refers to what is created the latest in time. Addition of value often contains addition of some type of freshness, in form or content. An example: An added late textbased comment that is created on-line, and spontaneously, in this sense represents a high degree of value addition.

Having access to fresh user comments and references to lately defined texts thus would increase the value of an activity. Also, a comment that by a user group is considered especially relevant, has high local acceptance, thereby is adding high value. Value addition thus can be seen as increased reference to application-relevant fresh data.

With this reasoning, time may be essential for many types of value addition. Interactivity is a facility that relies on time changes. Therefore, interactivity is relevant for value addition. A service that uses a high degree of interactivity can be said to add higher value than a service that uses a lower degree of interactivity.

A market that contains a large number of value added services thus can be seen as a "highly value added" market.

As an example concerning different types of applications, and their respective needs for transmission capacity, we can refer to material that prof Michael Noll recently has published about the need for transmission capacity for different applications (ref 2).

Dynamic advertising

This reasoning about the value of time-relations can be applied to advertising on electronic markets. On electronic markets, things can happen really fast, faster than on many other markets. Consider the following advertisement:

"The red Ford that you see on the following page, is three years old, has been driven 20 000 miles, and is in excellent shape. Its price is \$ 10 000 to-day at noon, and this price decreases with one dollar every minute, until somebody buys the car. Please respond on the related response page, and please - act fast!"

The person between this (real) ad pointed at an interesting marketing facility in interactive electronic marketing. The possibilities show the chances to let consumers interact with service providers, and to really influence on business opportunities.

In the example above, the ad uses a price function that decreases linearly over time. Naturally, other price functions may be used. They can be dependent on outside parameters, and on types of customer behaviour. Selection of pricing policies thus may become an especially interesting and qualified activity. Fixed prices also may be changed into bid-and-offer pricing in large scale, when contact with customers is known with higher precision than to-day.

Technically, such pricing can be implemented fairly easily with certain of to-day's electronic services. What is needed is access to demographic or other data about customers. This is possible on electronic markets where user log-on is based on personal identification, a systems facility that is more and more relevant as increasing numbers of banking services are made available.

A service provider may ask the network operator about access to parts of the customer database. With this he may form very sharp different marketing actions for different customer groups.

Market actions also may be limited in time. A market offer may be valid for a very short time, and only for certain groups of customers. It may be directed towards very specific groups of customers, customers that have high probability to be interested in the service.

Also, and what is new for interactive services where users are known to the system, the actions from certain groups of these customers may influence the offer, the price (like in the example above), or the quality, or the delivery time etc. This is possible if the service provider defines an own database with customer responses. After a certain number of responses from certain customer groups, conditions for the market offer may be changed.

It is important that personal integrity for customers are not harmed with this partly computerized marketing. Because of this, data about individual customer usage should only be collected in groups, and not individually. Possible market actions will still be sharp enough.

This type of reasoning defines a market where service providers and customers interact, on a more equal basis than on to-day's markets. It is using knowledge about this interaction that may give success. The market result may show to be especially efficient.

It is somewhat surprising that this kind of dynamic advertising so far in practice has been used only to a low extent. Its market implications and possibilities are apparent. Having control over price setting mechanisms always are extremely delicate matters. For new value added services, it will give access to new important competitive advantages. And it is not dependent on high technology.

A model about price setting, containing the on-line behaviour of customer groups, may be formulated. Work on this is going on. This model may be used for empirical experiments with testing of new market relationships.

Such direct contact with customer behaviour will surely affect existing roles and borders on the market. On an electronic market, more direct contact between consumer and producer will lead to less hands in-between.

Another change concerns ownership. You do not own an electronic service like you do with a manual service. In information society, "ownership" is complemented by "having access to". With an increasing shared influence concerning service actions between producer and customer, steps towards shared ownership over market actions are taken. This may turn out to generate long term effects.

Several organizational effects will be noted as we move into more and more value added services. To-day's videotex-type systems make steps in this direction organizationally, financially and practically possible.

The importance of the network

Experience from a number of videotex trials around the world seem to point at the fact that the market does not develop itself. Some kind of basic structural effort is needed. The organization of this effort naturally can be handled in many ways. Looking at Télétel, Prodigy and the Swedish TeleGuide, it can be claimed that investments in network infrastructure need to be larger than earlier has been anticipated.

Such investments naturally can be organized differently, but it may be that they have to supply basic administrative services above a certain critical level, for the services to really "take off". Possibly it is insufficient to supply a pure network based on telephone access to X.25, plus a relevant tariff administration. Instead, above this it may be necessary to organize a number of added administrative services, local mail services, automatic payment routines, higher service administration like "rerouting", help functions, intelligent content services etc.

The responsibility for such services may be organized close to the pure X.25 network or not. The further one steps, from network and out into applications, it is however likely that one will need increasing active presence from market forces. This is because only the market itself knows the true characteristics of the applications environments. Regulated market activities belong to the infrastructure. This can be discussed on the basis of the following figure:

Average degree of value addition in services

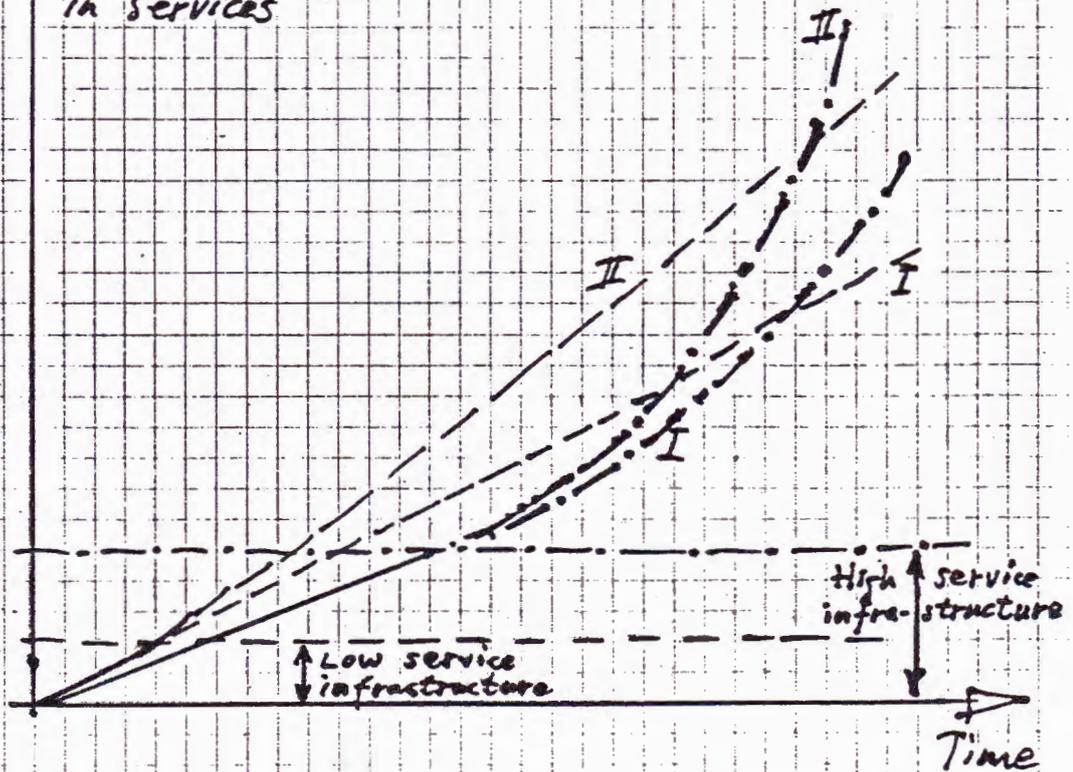


Fig. 1. Value addition in videotex expansion
I = Highly regulated market
II = Less regulated market

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