Interactive Marketing Information Systems:
Towards High-Precision Market Communication through Electronic Media

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Utility industries are changing. The change brings with it new business opportunities and requirements for new ways of conducting business. In this paper we first identify trends toward the “personalization” of electronic communication media and raise questions regarding the implications of this trend for interactive marketing efforts. Later, we stress the idea that electrical utilities will face increasing demands to enhance sales and service communication in general -- mainly toward more personalized orientation. We propose that enhanced communication implies \textit{interactivity} in the form of matching customer service organization and communication systems to that of individual customer decision making and communication styles. A decision making model is presented which offers a framework for understanding individuals and it is proposed that interactive communication systems can take into account individual styles and consumption history when presenting information and maintaining communication with customers in positive ways.

\textbf{Electronic Media Development and Marketing / Distribution}

Developments in electronic media technology impact marketing strategy and execution (for all business organizations and not just media companies). Electronic media is used to communicate; to communicate messages, orders, images, intentions, good will, etc. The very essence, form, and function of the relationship between producer and purchaser can be enhanced or destroyed by appropriate (or inappropriate) communication systems, processes and media. Thus, advancements in electronic media, through their impact on those relationships, impact marketing and distribution structures, systems and activities.

We do not propose that the relationship between electronic media and marketing/distribution systems and activities is merely a \textit{technology} dependent one. Technology is developed and employed by people working in organized social systems. Technologies are developed to facilitate, to maintain and to advance these social systems and the exchange relationships between organizations and individuals making them up. But applying technology also can change the systems that create them. Refrigeration, electronic, transportation, and telecommunication technology (for example) each have had impact on health, resource distribution, freedom, and other fundamental aspects of society including commerce, government, education, and social welfare, i.e., the social systems that created the technology.

Technologies are frequently put to uses unforeseen by their developers. Telephony, for example, was originally envisioned as a broadcast technology (messages originating from a
single point would be sent simultaneously to multiple points). But telephones were quickly put to use as point-to-point communication devices which transformed marketing and distributions systems (among nearly all other aspects of private and public experience).

The development and employment of telephony highlights what appears to be a general force underlying the development of media technology -- that of “personalization.” Personalization is a pressure to create and use media and communication technologies/tools in manners unique to individual applications, e.g., writing (word-processing); storing of individual information; sorting of specific information of use by a small group (or perhaps one individual) in only one circumstance; creating presentation of information in manners that appeal to unique aspects of identifiable social groups (segments) or individuals (customers); telecommunication between individuals and small groups; etc.

Trends toward personalization of media technology and the content carried by them reflects and encourages general trends toward personalization of products and services, i.e., niche markets and niche marketing.

The rise of demographic research and audience rating organizations since the 60s has assisted in creating niche media which appeal to different tastes (i.e., different segments of people). Advertising campaigns and advertising agencies specialize in the development of advertising content and media placement intended to match marketing efforts with media niches and thus target market segments. The trend is toward identifying unique segments that behave in predictable ways. The more precise the identification often the smaller the segment.

It is no coincidence that the number of niche media products (programs, channels, magazines, etc.) has grown and continues to do so as electronic media proliferate and target groups become more precise. Our expectations for personalized (relevant) communication and appeals and has grown in tandem with the growth of niche media and “personal-relationship-oriented production/program themes.”

Paralleling niche media development is the development of “economies of scope” for non-media products and services in general. Customization, product variation, and consumer choice continues to be important elements of product and marketing strategy in the 1990s and is foreseen to be so well into the next century. Investments in flexible/programmable manufacturing technology is enormous with the underlying force being that of producing smaller and smaller batches at increasing economies of scale.
Personalized Marketing through Interactivity

As expected (whether causal or caused) new media developments reflect the further “personalization“ of media and other product/service. One of the most recent developments in electronic media is that of interactivity. Interactivity in fact is the technological embodiment of personalization of content and dynamic experience. When personalization takes on an interactive form (i.e., interactive media) we can expect that such media will impact marketing and distribution systems. The existence of this impact is confirmed when one simply asks the question “How many companies have taken up strategic discussions regarding how to exploit the World Wide Web/Internet?” -- the newest “mass- interactive media“ today.

Increased personalization of both media products and niche markets in general demand that products, marketing strategy, and informative/persuasive communication better match the characteristics of messages/information with the characteristics of products, people, and the media carrying the message/information. Below we present relevant areas or domains of scientific as well as practical inquiry. Some areas or questions are new and other are not. But we propose that even “old questions“ should be asked about “new media.“

How can marketing and communication strategies and techniques maximize the advantages of developments in interactive media, while minimize cost and maximize effectiveness in this multimedia media milieu?

What characteristics of media, product/service, distribution channel, message and individuals interact in predictable and explainable ways? Along which dimensions should such “characteristics“ be analyzed? How can an understanding of such characteristics and their relationships (interactions) inform marketing strategy, product development, producer/buyer communications, etc.?

What media are most effective in generating and enhancing the most valuable customer/producer relationships? In particular, what forms of interactive media are most effective in enhancing such relationships and in which circumstances? And how can interactive media be best combined with other media to create “multiple channels of dialogue“ via what are traditionally one way media.

What is interactive media best at measuring? Isn’t there more to be understood than “number of hits“ per day? Can interactive media be used to capture individual differences, record
preferences, and “respond accordingly” to enhance effectiveness of communication /persuasion? If so, how and in what circumstances?

What new forms of market segmentation principles can be developed which capture and manage the interrelationship between individual differences, precision media, media use behavior, the products/service marketed and the medium itself? And given an understanding of these interrelationships, how could we better formulate effective interactive marketing and communication strategies which seize advantages and avoid mistakes?

Does media use behavior lend itself to better understanding of markets or market niches for products other than information/entertainment?

What do media strategy and media placement mean in the age of placeless and timeless multimedia space?

What products and messages are best presented in which types of media and in which forms? And in which combinations?

What types of information (media products) are best marketed over which types of media? How will these developments alter/influence the creation and marketing of products and services throughout the product life cycle?

The common denominator to these questions is the attempt to transcend the traditional macro-approach of mass-marketing where better precision is gained by more-or-less coarse-grained market segmentation. This is done through such micro-approaches as service and relationship marketing that focus on the specific interpersonal interaction between customers and marketing employees at the "moments of truth" of the service or sales encounters.

Unfortunately, while the macro-approach sacrifices precision at the personal level in favor of reaching larger volumes, the micro-approach often sacrifices volume to achieve more precise personalization. Electronic media now offer the possibility of combining the macro- and micro-approaches’ respective strengths to overcome their respective weaknesses, i.e., the development of mass-personalization through interactive, high-precision marketing information systems.
High-Precision Marketing through Interactive Electronic Media

Marketing is still caught up in the mass-thinking of mass-production, mass-media, and mass-culture of the "mass-industrial society." If sales performance can be seen as the following function:

\[ \text{Sales Performance} = f \left( \text{number of exposures} \times \text{precision} \right) \]

marketing has been clearly focusing on the volume/exposure side of the equation, as illustrated by the preoccupation with number of sales calls, size of market, market share, media audience, etc. However, such a volume focus is likely to result in increasingly diminishing returns and may even undermine future markets. For example, if a company has a precision of 10 percent (i.e., one of every tenth exposure resulting in a sales closing), then 90 percent of the exposures actually are ignored or consciously rejected. A large part of these "misses" may not want to become exposed again as they grow bored, bothered or otherwise negative towards the products offered; consequently decreasing potential future sales.

Furthermore, while increasing the number of exposures with, for example, 20 percent also increases the sales volume with 20 percent, the improvement from 10 to 20 percent precision actually doubles the sales volume without having to spend resources on increasing the number of exposures or undermining future markets with negative reactions. It should be clear that even if precision improvement of marketing may be a difficult task there is hardly anything more rewarding than precisely this activity.

Competent personal selling is one micro approach towards high-precision marketing where the interpersonal interaction can personalize the marketing efforts -- especially in professional services and industrial marketing (which usually have fewer customers). Precise personalization becomes increasingly difficult as larger markets are pursued. Mass-service companies, such as utility organizations, are hardly able to create personal relationships with their hundreds of thousands of customers.

Electronic media, such as the Internet, offer now the opportunity of creating interactive marketing information systems that allow companies to develop "semi-personal" relationships with large numbers of customers without prohibitive marketing personnel costs. The design of interactive marketing communication channels and systems can enable customers to self-personalize the marketing information to their individual needs, interests, and personalities.
This requires, though, that the designers of interactive marketing information systems have some form of a model for sensing individual needs, interests, and personalities so that the information system can adapt accordingly to each individual.

**A Decision Style Approach to High-Precision Marketing**

Professor Michael J. Driver’s *Decision Style* model represents a particularly suitable model for sensing and adapting to individual differences among customers and thereby achieve higher precision in the marketing communication. It has been applied to service management (Larsson, Svensson & Ulvenblad, 1993) as well as personal selling (Perrault & Brousseau, 1989) where it has been found to explain towards 70 percent of the variance in sales performance among 26 high-tech sales representatives (Brousseau, 1987).

The Decision Style model is thoroughly presented in the book *The Dynamic Decision Maker* by Driver, Brousseau, and Hunsaker (1993). Decision styles are viewed as learned habits or patterns of processing information in leading to decision-making that vary in two basic dimensions: (1) amount of information used in making decisions; and (2) focus or the number of alternative outcomes generated. Individuals either satisfice or maximize their information use. Satisficing occurs when one stops information search once a sufficient solution is found. Maximizing occurs when one continues to collect data until no additional information value is obtained from new data. Additionally, individuals tend to be "unifocus" or "multifocus" with respect to the number of solutions sought and generated by the information gathered.

Combining these two dimensions (information use and “solution” focus) creates four basic decision styles Decisive, Flexible, Hierarchic, Integrative. (The four basic types are displayed and briefly described in Figure 1 together with a fifth decision style - Systemic - which has emerged in empirical research as a distinct style that combines aspects of the Integrative and Hierarchic styles into a prioritizing maximizer style).
The Driver Decision Style model provides a useful logic for understanding and managing the essential interpersonal congruence between customers and marketing persons. Communication is a central activity in marketing and service production. Besides the traditional marketing communication of customer demands and product information, employees need to perform the delicate communicative tasks of guiding the customers’ participation and experience of the process as well as the outcome to ensure efficient and satisfactory accomplishment of the services. It is surprising to note that so little managerial as well as research attention have been given to this key issue of how well customers and employees communicate.

Rather than leaving the interpersonal chemistry between customers and employees to chance, the Decision Style model suggests that communicative fit is primarily achieved between individuals with similar decision styles. Conversely, there exist toxic communicative misfits between those decision styles that are different in both the information-processing dimensions. For example, a Decisive customer is likely to become very frustrated by an Integrative employee since the latter will tend to be viewed as talking too much about too many things without getting to the point.

Other toxic relationships include a Flexible customer that can view a Hierarchic employee as ponderous and rigid, and a Systemic customer that may see Decisive as well as Flexible employees as shallow. Systematic efforts can thereby be made to achieve communicative fits, and especially avoid toxic misfits, by matching customers and employees based on their decision styles.
Such efforts to improve communication can effectively function as team-building activities in work groups of employees who are readily selected, tested, and trained in terms of the Decision Style model. In the sales/service context, however, decision styles of customers are much less accessible and controllable due to their temporary and sovereign involvement. Thus, communicative matching is hampered by lack of knowledge of customer decision styles (as well as the customer being less amenable to accommodation of employees’ styles), which leaves full responsibility of achieving interpersonal chemistry to the employees.

Customer decision styles can be approximated through different techniques. One such technique is an unobtrusive measurement using a customer service questionnaire where customers are asked about dimensions of service important to them in such a way that salient decision style indicators are included. This technique is primarily relevant to specific, potentially long-term customer relationships of sufficient value to the service organization to make such personalized investments worthwhile.

**Outlining an Interactive Marketing Information System for Utility Firms**

For utility firms, marketplace and technological developments (i.e., deregulation, proliferation of service options, the development of distributed controlled power delivery nets, and new services promised by LONWORKS and other technology) imply increasing amounts of communication with customers in both sales and aftersales/service contexts. Thus, organizational systems supporting enhanced and valuable customer service orientations will include enhancements to interpersonal and mediated communication processes.

LONWORKS technology effectively “creates” the broadest communication net in existence through its use of electricity nets. (In nearly every industrialized region the only penetration figure greater than that of telephones is electricity service). Moreover the application of distributed control technology to power distribution nets, in combination with LONWORKS creates a virtually continuous communication link with customers. No longer will “one bill per month” and “an order taking/service disconnection” conversation suffice if the goals of power net technology development are to be attained.

In the case of residential electric service we see opportunity applying decision styles to the service communication context. With the new power net communication technology one primary objective is to coordinate power delivery with individual household demands to the extent technically possible. To achieve such coordination, communication with each household or customer will be more-or-less continuous. (Moreover, to the extent that new
communication services are contemplated as being available through the power net, the sheer volume of communication with the customer will increase.) Common service experience as well as the Driver Decision Style model suggests that “toxic” interactions should be avoided (at least) and “precise/clear” interactions should be achieved as frequently as possible if increased coordination with customers is to be achieved.

In the case of new technological power net applications, customer communication will usually be mediated by an electronic communications network. Customer interface will be primarily managed via some form of communications terminal. And the content of communication will vary, in relative terms, in complexity. Information about various options of service delivery, under different times of day and in varying residential service packages must be communicated such that consumers decide on the best constellation of service for them given available options.

We said that the complexity of the content of communication will vary in relative terms. We mean by this that individuals differ in respect to their perception of complexity of information. Perception of complexity can be influenced by, in part, the interaction between: the nature of the information, the way it is presented, the medium used in presenting it, and individual characteristics with respect to information processing and decision making.

In this context, interactive media holds real promise. Interactive media (IM) offers the possibility of presenting “the same” information in different ways depending on user preferences. A simple medium, or terminal, should not be considered interactive simply because it provides options to chose from. Interactivity implies variation in presentation format -- not just in what (information content) is presented.

Imagine if you had, for example, instead of one brochure explaining all services and their options, you had a stack of brochures offering as much (or as little) information as the prospect desires on any one service. Imagine further the information was presented in “flashy, sexy, dynamic advertising fashion“ (which appeals to some individuals as a communicative style) while in another brochure the same information was presented in a “prioritized, rational, logically persuasive manner“ which appeals to other types of individuals. The challenge is “sensing“ which information (e.g., brochure) should be presented to which customer to achieve the most effective communication. Intelligient Interactivity requires a combination of user selection (“I want to know more about service A“) and how it is presented (i.e., “Service A is the latest most exciting development in...“ versus “Service A can save money and time in....“).
Moreover, the possibility of combining such information on service options with historical service usage patterns of a household can create a dynamic presentation of options, recommendations, and sales decisions more-or-less customized to each household.

In order for power net communication technology to become “interactive” it should incorporate some form of the following elements:

- Dynamic Sensing of Customer Decision Styles
- Historical Usage Patterns (if they exist).
- User Driven Information Presentation Themes & Service Options

Applying the Decision Style model to a more generalized sales/service context requires matching the elements of a customer’s decision style with elements of the sales and service context. In Figure 2 below the circle on the left side identifies the two primary aspects of one’s decision style (role and operating style) and corresponding social & behavioral attributes. The arrows flowing between the left and right circles in Figure 2 represent the correspondence and interaction between the customer’s decision style and elements of an interactive sales/service context. Customer attributes associated with role style should be sensed early in the “marketing“ phase when information use (seeking and presentation) activity is highest and most sensitive. Operating style attributes relate to interaction during actual use of the service and should be reflected in the design of services and in their presentation.

Figure 2  A Decision Style Approach to High-Precision Marketing

Selling with Style
The power net communication technology puts the utility organization in continuous communication with its customers through both their actual power use and potential use of some kind of terminal. This offers, together with the use of style-sensing customer surveys, great opportunities for the utility organization to develop increasingly precise approximations of customer styles and thereby improve the precision of its market communication and product offerings.

An interactive marketing information system can thus be developed using the analogue of intelligent search agents on the Internet. The communication with each customer can be managed by an intelligent response agent that can sense the customer style with increasing precision over time as its data file increases. In this way, the customer him/herself will self-personalize the marketing information and product offerings by his/her own interaction with the utility organization’s information system over time which can be automated to serve its mass-customer market.

**Conclusions**

In summary, utility industries are changing. The change brings with it new business opportunities and requirements for new ways of conducting business. In this paper we have stressed the idea that electrical utilities will face increasing demands to enhance sales and service communication in general. We have also proposed that enhanced communication implies *interactivity* in the form of matching customer service communication and organization systems to that of individual customer decision making and communication styles. The Driver decision style model was presented as a framework for understanding individuals and we propose that interactive communication systems can take into account individual styles and consumption history when presenting information and maintaining communication with customers in positive ways.
References


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Rikard Larsson is Associate Professor ("Docent") of Business Administration at School of Economics and Management, Lund University, Sweden. His teaching and research areas include strategy, organization, human resource management, and service marketing and he has published articles in the internationally leading *Academy of Management Journal, Review*, and *Executive*.

Rikard became leader of the "New Business Strategies" project in EnerSearch AB early this year, including being academic advisor to two doctoral students working in this project. His main contribution to EnerSearch has so far been to integrate his knowledge in strategic human resource management and service marketing into a Decision Style approach to interactive marketing information systems. This approach enables power utilities to better understand and communicate with their customers by sensing different customer decision styles and adjusting the market information and offerings to better fit individual customer groups.

He is also the founding chairman of Decision Dynamics Europe AB, which is a consulting firm specializing in strategic human resource management through assessment of individual employees, customers, work situations, organizational systems, and performance and the development of the dynamic fit between these strategic components. Its clients include ABB Power Systems, ABB Atom, ABB Research, and Tetra Laval. The consulting builds upon the models developed Professor Michael J Driver and Kenneth R Brousseau and the firm is member of their Decision Dynamics Group that is consulting to such organizations as General Electric, ARCO, ETS, Eli Lilly, Johnson & Johnson, NASA, Rockwell, and Xerox.