Managing Nostalgists: Extending Information Services Infrastructure

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Introduction

The use of technology in Information Services has significantly increased since the advent of the Internet. Globalization and competition has created a need to effectively manage and have timely access to the torrent of information that is generated globally. To gain a strategic advantage, corporations must leverage the use of technology in Information Services for improving their business performance while overcoming the resistance of some nostalgists to the new technologies. This paper addresses some of the technology deployment needs in bio-pharmaceutical companies that have mature business processes and legacy systems and presents the tools and survival strategies successfully used in influencing information users (customers) who have been persuaded to accept new technologies. Demonstrating the value of varied technology-based resources through a partnership approach will help the "old dogs" to tap into newer technologies and learn new tricks.

In this technology-based knowledge era, the information needs of corporate users have diversified, as information has become available in various multi-media formats. Today's information managers must align Information Services to their organization's operational priorities and strategic goals to design information services unique to each functional group, i.e. A Research & Development Group may have requirements significantly different from a Manufacturing or a Marketing Group. Therefore, it is challenging to meet the needs of the diversified users that demand information from multi-media formats. While some users embrace the newer technologies, still others remain proselytized. There may exist resistance to the introduction of new technology and the resulting change amongst the functional groups. The customers who are not happy to accept a technology or to adopt an innovation are classified as "Nostalgists." They yearn for the past when life in the corporate information world was simple and easy. The Information Services infrastructure that is necessary to meet these challenges requires a business process re-engineering that involves people, services, technology based tools and products. The new infrastructure must be able to quantify and show its alignment to the corporate goals, as well as adapt to the continuous quest of reduction in time and cost of its services.

The objective of this paper is two-fold: a) to provide successful strategies for influencing nostalgists (teaching old dogs new tricks) and, b) to propose a model that provides insight into the complex constructs associated with the technology acceptance or use by nostalgists. The model that is proposed will help gain an understanding on the following questions:

1) What prompts users to use or not use digital information?

2) What is their preferred medium to access information?

3) What characteristics and expertise is required from information professionals to influence users to accept or use new technology?

4) What methods or techniques need to be deployed to avoid a detrimental domino effect of wrong perceptions?

This paper highlights "creative and successful programs" including, but not limited to, advertising, product demos, well planned rollouts, customer/user partnerships, customer intrinsic awards, and targeting of users by a segmented approach. It concludes with some suggestions for changes in approach to achieving excellence in teaching nostalgists by using the right mix of information products and technology.

Background

In Library and Information Services (LIS), researchers have studied psycho-behavioral factors affecting information seeking and information use. Yet, there has been limited application of the Technology Acceptance Model (TAM) or Theory of Reasoned Action (TRA). Since there has not been much empirical research in the LIS field, this paper uses a TAM model as a framework by drawing constructs used in the Management Information Systems (MIS) literature. Several studies provide valuable insights in MIS literature that focuses on IT acceptance and computer use. The most common theories based on the development of TRA (1975) and TAM (Davis, 1989) models have been widely accepted in the literature.
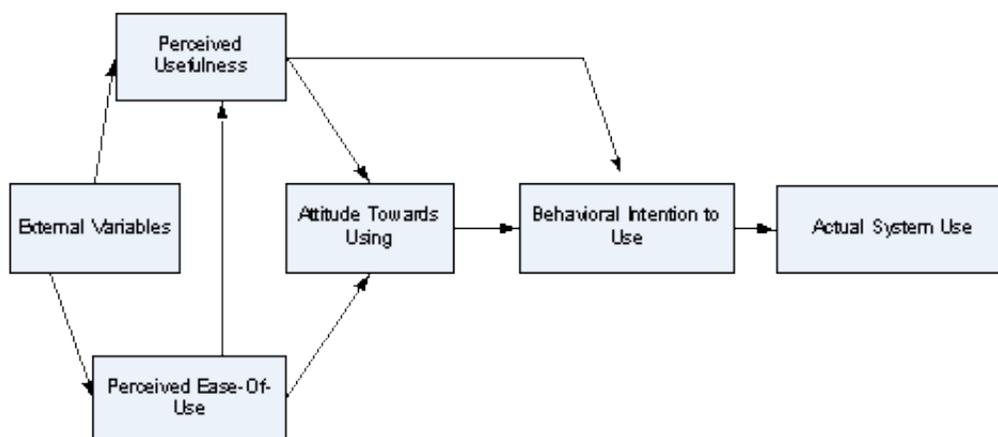
Davis's Original Technology
Acceptance Model (TAM)

Figure 1- Technology Acceptance Model (TAM)

The dimensions of these popular models were either applied to specific groups of users or they were extended using many other constructs that can be found in the literature. Davis (1989) developed TAM and it is based on TRA. This was developed mainly to address the problem of human behavior toward computers in the workplace. The 'Theory of Reasoned Action (TRA)" model comes from social psychology research and was first proposed by Fishbein & Ajzen (1975). The model is used to help understand and predict human behavior in making decisions. The components of the model are beliefs, attitudes, intentions and behaviors. One's beliefs shape one's attitude. The attitudes in turn cause intentions that drive behavior.

TAM focuses on two key elements in addition to adopting the constructs from TRA. They are Perceived Ease of Use and Perceived Usefulness (PEU and PU). The degree of acceptance of a computer-based technology is primarily a function of their perceived usefulness of the technology and their perceived ease of use of the technology. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance," (Davis, 1989). Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort." TAM asserts that the technology acceptance by a user has to do with the attitude, belief, behavior and other external variables. Ultimately, all these factors influence an individual towards acceptance or actual use.

Successful Strategies for Technology Acceptance in Information Services

A successful strategy takes into account all the elements of cognitive and social factors that influence acceptance or rejection of new technologies. In environments that have strong social factors at play (old corporations, legacy systems, outdated business processes), it is important to give added emphasis to human factors. The major areas of importance for a successful introduction of new information service technologies are listed and discussed below.

1. Define User Community and Know Your Customers

2. Self Assessment/Knowledge Audit (Know Yourself)

3. Marketing and Product Rollout Strategy

4. Training

5. Feedback

6. Measurements of Success and Critical Success Factors

1.   Define User Community and Know your Customers

The first and foremost survival strategy for a service organization lies in identifying and understanding the customer base. An understanding of customers involves knowing their culture, work processes, group or department, specific research areas, current problems, and other needs. In other words, knowing your customer requires understanding the similarities and differences that exists among various groups. It is

also important to understand how their performance is measured and what motivates them to reach their business goals. Such understanding can be sought by conducting an Information and Knowledge audit using surveys and interviews.

2. Self Assessment/Knowledge Audit (Knowing Yourself)

A knowledge audit may be conducted to determine existing knowledge, and the knowledge gaps that can be filled within the Information Services department. Areas of self-assessment include topical/technical, and technology knowledge, training capabilities for hosting workshops, conferences, product demos. Experts need to be identified who are champions, facilitators, moderators, communicators, and good speakers who can portray a professional image. These experts must understand the existing infrastructure of the tools and technologies, and their roles and responsibilities with accountabilities. Finally, it is critical to document and quantify the economic value added by the Information Services Group to the business enterprise.

3. Marketing and Product Rollout Strategy

a) Customer Segmentation

A segmentation of the customers based on their functional groups (R&D, Marketing, Sales, Manufacturing etc) needs to be performed. Within these functional groups, it is necessary to identify nostalgists, influencers, advocates, naysayers, etc., so that targeted messages specific to each of these groups and subgroups can be developed. It is important to tailor a program specific to every individual in the corporation making heavy investments in R&D and whose survival depends on a strong pipeline of new products.

Using segmentation, early adopters having a natural bent toward new technologies can be identified. The early adopters should be used as test beds for a phased introduction of new information resources based on new technologies. As the model indicates, the opinions and comments of the selected early adopters will serve to alter the image and subjective norm (social factor) of other members, so they may begin to perceive the usefulness favorably. The next phase of rollout should focus on the nostalgists, naysayers, and other skeptics who by this time have heard positive stories from the early adopters. It is also useful to have the early adopters act as partners who will field questions from the customer base.

b) Advertising and Promotion

Established organizations rely on multiple means of communications because of the varied levels of technology acceptance. New initiatives in Information Services must use all of the available channels such as emails, posters, flyers and electronic bulletin boards and present a clear theme and a separate flyer for each program. The message must convey the new technology, process, or product as an innovation that directly affects a measurable objective of the customer base. A well-designed and timely distributed advertisement acts as a catalyst to speed up changes in customer's perception.

c) Intrinsic Awards

Recognition plays an important role that affects perception. Instituting various forms of awards at various stages can increase customer acceptance of technology. Recognition of early adopters gets the attention of the nostalgists who may be prompted to spend time investigating the new programs. Food is universally accepted as an inexpensive incentive. Information Services departments in general operate on tight budgets and offering incentives as part of promotion is often viewed as " spending too much" on customers. Some customers may be given access to a specialized database as a gift to enlist their support. As Gandhi said "make your enemy your friend." An award category may be created to include these nostalgists. A change in the attitudes can be seen as a result of the recognition leading to adoption of new technologies.

4.   Training

An effective promotion alters the perception of the nostalgists about Information Services towards attending a training program. In corporations, customers often work on the unrealistic schedules are burdened with excessive workloads due to hiring freezes and suffer from information overload. As a result, they have less time to spend learning new tools and resources. The training programs must leverage multiple instruction mediums such as WebEx, Sametime, Classroom, and Self Study. Teaching methods should be customized to varied levels of learning.

Group culture plays a significant role in influencing perceptions. Scientists and engineers as a group place a high value on technical as well as technology expertise. It is important to leverage this influence to change the attitudes of the nostalgists. It would be useful to take advantage of the early adopters to assist as partners in training and product demonstrations.

5.   Feedback

The TAM Model and its variants do not use feedback as an element for sustaining acceptance of new technology. In practice, it is an important mechanism that helps to modify and reinforce those factors that assist in altering perceptions. Many new programs fail after the initial novelty fades and many users including nostalgists relegate new initiatives as "just another flavor of the month" and revert back to their old ways. Feedback should be used as an iterative process for teaching nostalgists and training should be continuously modified based on the feedback. A database of "Lessons Learned" will serve to develop targeted promotion and training for the various functional groups in organizations.

6.   Measurements of Success and Critical Success Factors

A good measurement system must be established to quantify the results of activities that are undertaken to roll out a new Information Services technology. The

measurement system must have multiple metrics that can be viewed from users' perspectives as well as the Information Services Professionals perspectives. The results must explain and correlate how perceptions have been altered in a positive way to move users to accept new technology. It is also important to have metrics that captures the benefits of the new technology in real dollars. Involving the users in designing a measurement system may reinforce their desire to achieve their targets of performance.

Critical success factors for a successful adaptation and implementation of technology-based information product would include:

· a good understanding of the organization's goal

· an understanding of the business processes

· a good knowledge in streamlining the segmented user-base to match the right technology based resources to the right users.

· having an executive champion who can help in aligning the measurable goals of the Information Services group to the corporation
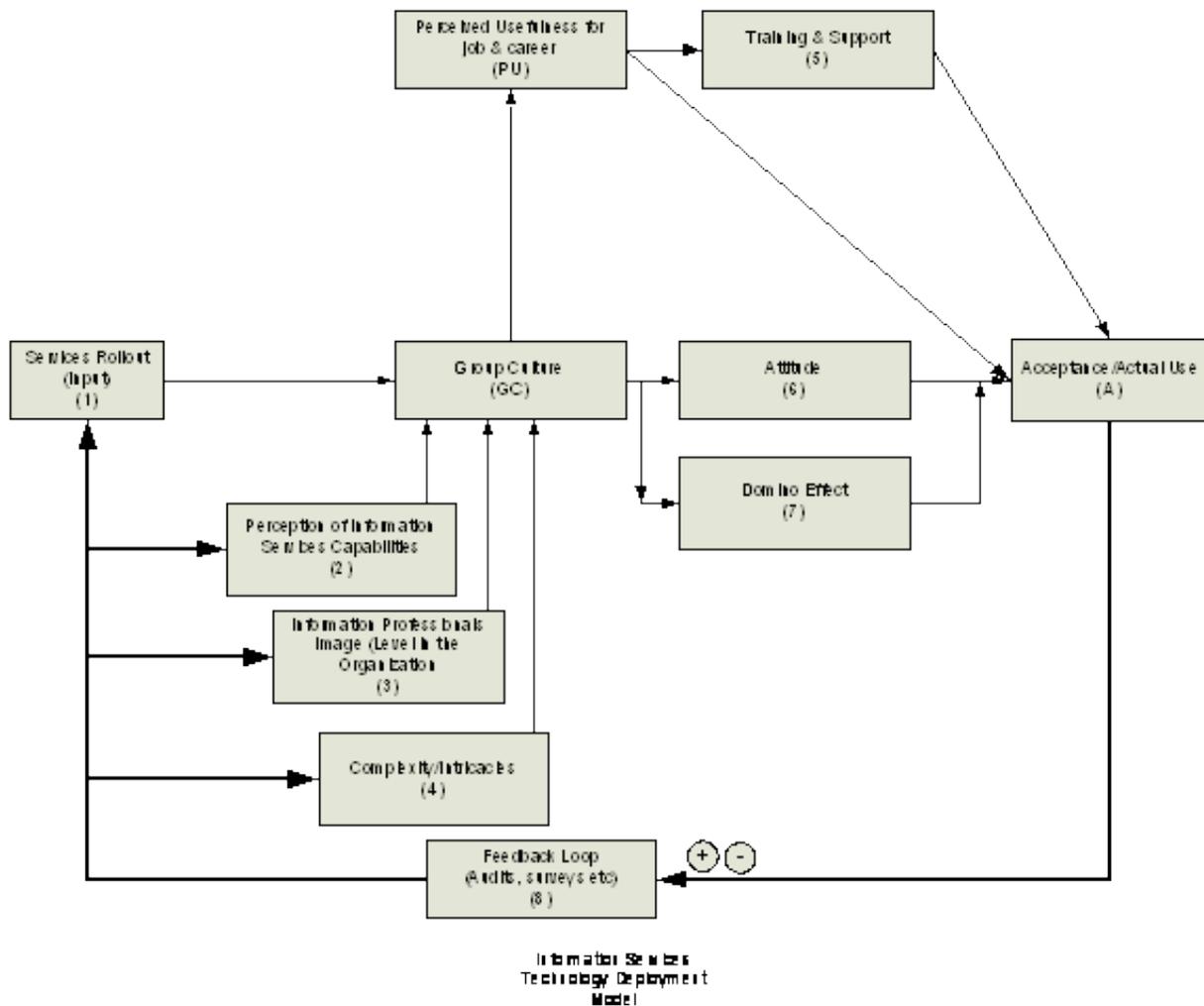
All the above factors have been proven invaluable in the launch of new technologies.

a) Domino Effect &Voice of the Customer

The domino effect is, "The idea that some change, small in itself, will cause a similar change nearby which then will cause another similar change and so on in linear sequence, by analogy to a falling row of dominoes standing on one end," (Wikipedia, 2003). In scientific terms, this could be called a chain reaction. This effect can be seen in organizations where co-workers influence one another to follow their path. The domino effect can lead to both positive and negative outcomes. The negative domino effect can be avoided when nostalgists are identified early during the user audit phase. Using early adopters as partners can often trigger a positive domino effect that can move the majority of the users into accepting technology based services very rapidly. Information Professionals must always be on the lookout for a positive domino effect that will result in the least cost means of deploying technology based services.

Information Services Technology Deployment Model

This paper uses TAM as a framework for identifying factors that prompt digital information use and proposes a model to influence nostalgists. While other popular models provide useful insights, we still need a new perspective to help us understand TAM better in relation to Information Services' customers.

Figure. 2 Information Services Technology Deployment Model

The proposed model above (Fig.2) depicts the relationships and pathways that impact perception of usefulness or ease of use depending on the user functional groups (R&D, Marketing, Manufacturing etc.). In long term bio-pharmaceutical organizations, the group culture plays a dominant role in shaping the perception of technology based information products and their usefulness. Because the user community is diverse, the pathways of factors that affect acceptance varies. Four main pathways have been identified in the study. They are depicted in Fig.2 as (1,GC, 6, A, 8), (1,GC, 7, A, 8), (1, GC, PU, A, 8), (1, GC, PU, 5,A, 8).

Pathway (1, GC, 6, A, 8) is when the group perceives readily the need for technology, changes its attitude and becomes an immediate user. This is typically the situation when the users have an immediate need and approach the Information Services department for a solution. Pathway (1,GC, 7, A, 8) exists when a few early adopters who are influential users within a group have advanced skills and can set the example for others. Because of their position within the organization, others are forced or influenced to adopt and therefore, a domino effect occurs leading to full

acceptance. This pathway is the ideal for rapid deployment of new technologies and added emphasis must be given to identify this pathway. Pathway (1,GC, PU, 5, A, 8) is the normal TAM step that is characteristic of reasoned behavior of users who are savvy enough to move toward acceptance without any training. Pathway (1,GC, PU, A, 8) is the traditional path where the groups perception is changed because of its perceived usefulness, who in turn are trained and ready to use new technology. Group Culture (GC) is the main variable that is influenced by many other factors that ultimately determine perception of the group, leading to final acceptance through additional intermediate steps. GC also is the factor that requires change in an established organization where there are many more nostalgists and few early adopters. The domino effect is categorized as those factors that short circuit reasoned behavior steps. Again, group culture can trigger a domino effect that leads to all barriers being broken for technology acceptance, or if it is negative, can doom the project for failure before it has begun. Guarding against the negative effects of the domino effect is critical for success in technology deployment.

Feedback loops are a characteristic of control systems. In a typical control system, a set point is the input to a system that results in an output. The output is fed back for a comparison with the input. If they are the same, then no further action is taken on the system. If there is a difference, a correction is sent to the system until the difference between the input and the feedback is zero. Negative feedback is used in a control system to reach steady state so no further inputs are required. Behavioral systems can be modeled as control systems that have very long response times. It may take months or years to see some changes in the group culture. Mechanisms to shorten response times need to be studied to increase the pace of acceptance of new technology. The concepts of feedback can be used effectively to make the course corrections for technology deployment. In this paper feedback is used in a generic sense as it may be positive or negative. The feedback loop (Block 8)(Fig.2) plays an important role in sustaining the use of technology-based Information Services and it serves to correct the perceived image of the services department as well as the Information Services department professionals. A continuous feedback of data from surveys, audits, and other informal means will help to change the group culture. In turn, it results in a permanent change in the use and acceptance of technology based Information Services. The suggested model currently is subjective, however a subsequent paper will attempt to quantify the pathways of reason and behavior for successful acceptance and deployment of technology based services.

Summary and Conclusions

This paper has attempted to provide some ideas and strategies that are effective in converting nostalgists into believers and users of technology-based information services. Important communication pathways and factors affecting group behavior were identified and studied. Some of the methods used to deploy new services were explained. A follow-up paper will provide the details of analysis and the findings along with the revised (tested) model.

It is clear from the initial findings that changes in approaches are necessary for better use of technology and acceptance of technology-based Information Services.

Other reasons for not using technology include: a) lack of understanding of the changing roles and capabilities of the Information Services department, b) negative image, and c) lack of training. There are also cultural barriers within organizations to accept information service products as contributing directly to innovation and to increasing number of patent filings.

In sum, effective implementation of any service requires knowledge of the technologies, understanding of customers, and alignment to the strategic business goals of the organization. As illustrated in the model (Fig.2) information professional's image, user perception of Information Services capabilities along with external variables affects the acceptance or rejection of new technology. In this information age, it is important to consider Information Services as another economic resource, (like a financial, manufacturing, or natural resource) and elevating their role in organizations with a separate reporting structure is needed. Too often Information Services Departments are buried within other functional groups with no clear mandate or direction. In the recent spate of business consolidations within the bio-pharmaceutical industry, "Intellectual Property and Goodwill" are valued in the millions. The success or failure of the global corporations of the future will depend to a large extent on the management of information resources that are really the real property of corporations as opposed to land and buildings.

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