Organizational issues = change

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Abstract

Information systems fail for a number of reasons. Several failure reasons include communication, complexity, organization, technology, and leadership. Failure can be outlined in four major categories: technical shortcomings, project management shortcomings, organizational issues, and the continuing information explosion. Change management is the process of assisting individuals and organizations in passing from an old way of doing things to a new way of doing things. Change management starts early in a technical process, as the need for making major changes starts at the conceptual level. This paper briefly covers the people side of implementing new information systems, and describes resistance to change and various strategies to manage technological change.
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1. Introduction

One of the most difficult problems organizations face is dealing with change. In today's rapidly changing environment, the ability to change rapidly, efficiently, and almost continually is a major dilemma for organizations. Information systems are now considered central to most changes in health care. Over the past decade, many organizations have installed major information systems (ISs) in their healthcare organizations [1]. Implementing major IS or making systems changes in any organization is challenging, and many systems have had some types of "failure". Most healthcare informatics professionals today have experienced or are familiar with one or more system failures. Many healthcare institutions have consumed huge amounts of money and frustrated countless people in unsuccessful IS efforts. "Failure" is a very broad term, and many health informatics projects are certainly not complete failures. At some point, the new system is finally

installed, becomes operational, and continues to perform at some level of efficiency and user satisfaction. However, there are at least two considerations. First, is the system as good as it might have been for the resources expended? Second, how much did the system really cost when all the costs have been considered, including intangibles such as stress on the organization and the individuals involved?

2. Why IS failures occur?

Complex problems rarely have simple solutions. Independent of whether or not the solution is a technical one, countless opportunities for mistakes exist in the problem-solving process. In reviewing IS failures cited in the literature as well as drawing on our personal observations and experiences, we have seen the rising importance of human-related issues, often referred to as people and organizational issues.

Several of the reasons for failures in implementing major IS include, but are not limited to, the following [2,3]:

- *Communication*: ineffective outgoing communication, ineffective listening, and failure to effectively prepare the staff for the new system.
- *Underestimation of complexity*: missed deadlines and cost overruns, lost credibility.
- *Scope creep*: did not define and/or maintain original success criteria, and failure to renegotiate deadlines and resources if criteria do change.
- *Organization (samples only)*: no clear vision for the change, ineffective reporting structure, technical "fix" to a management problem, and roles and responsibilities not clearly defined or understood by everyone.

- *Technology*: poor procurement, lure of the leading (bleeding) edge, and inadequate testing.
- *Leadership issues*: leader too emotionally committed and over-commitment of leader's time.

3. Implementing new systems

People-type issues can arise in any size or type of organization, and their likelihood or form depends upon the individual. Also, organizational-type issues may vary widely depending upon issues such as organizational size, culture, and level of bureaucracy.

3.1. Why do these failures happen?

"Failure" is a very broad term. Many health informatics projects are certainly not complete failures. There are no easy answers as to why so many health informatics projects have not been more successful. In most cases, there are multiple factors at play. Even with an in-depth analysis, separating the impacts of these various factors may be impossible. We can classify the failure factors into four broad categories: technical shortcomings, project management shortcomings, organizational issues, and the continuing information explosion [4].

3.1.1. Technical shortcomings

The rate of change in the ISs arena is truly astounding. The problem of updating IS technology is not so simple for institutions that have significant IS histories. When a traditional IS organization attempts to upgrade its software approach, it encounters several problems. It has a massive base of existing software—legacy systems—that it cannot just abandon overnight. Until the new software is developed or purchased, the

old software must be maintained. The next problem is training the existing staff to the new methodologies. When an organization fails to establish and follow a viable long-run technology strategy, the risk of implementation failures increases significantly. The demands for staff competency are erratic, and the motivation of the technical work force typically varies widely, as people are given challenges significantly above or below their competencies. There is no question that technical competency will always be an issue in any highly technical and rapidly changing area. On the other hand, it is equally important to realize that technical competence is an insufficient condition for the implementation success.

3.1.2. Project management shortcomings

People who are highly trained technically—regardless of technical area—are typically not renowned for their level of management skills. Certainly, there are exceptions; however, the very attributes that make a person a good technician may well not be the attributes necessary for a good manager. Over the years, countless IS departments have developed the unfortunate reputation that every project takes twice as long, costs twice as much, and delivers half of what was promised.

3.1.3. Organizational shortcomings

The leadership within most organizations is in a state of constant flux, with leaders coming and going at an amazing rapid rate. With each new leadership change comes the potential of goal and strategy changes. These changes, often rapid, cause significant organizational stress. Unfortunately, the organizational impacts of such rapid change are often not well understood by health informatics professionals. Typically, the impacts and the managerial strategies for dealing with them are not as easily defined and measured as their more technical counterparts [5,6].

3.1.4. Information explosion

Wyatt [7] notes that the number of biomedical journals doubles approximately every 19 years. The "core information in the subspecialties of internal medicine" is estimated at 2 million facts, with "an upper bound of approximately 1 million facts as the core body of information in general internal medicine" [8]. As the quantity of biomedical knowledge has increased exponentially in recent years, informatics professionals have developed technical tools and strategies to cope with the vast volume and flow of information. These technical tools and strategies are becoming increasingly sophisticated, affecting more and more aspects of the biomedical organizations in which the strategies are implemented.

3.2. What do we need for success?

To create quality systems, we need to look at three sets of skills. (1) Technical skills, which include a broad range of skills such as computer, telecommunications, medical, etc. This is the body of detailed technical knowledge, experience, and abilities—regardless of area—necessary to create a successful system. (2) Project management skills, which include the knowledge, techniques, and skills necessary for the successful internal management of significant IS projects. Under this umbrella fall the traditional management functions such as planning, directing, controlling, motivating, and staffing. A good project manager must typically possess a blend of technical experience and managerial knowledge. (3) People and organizational skills, which include the wide range of skills necessary to effectively interface with all of the IS stakeholders outside the project team.

3.3. Why have not people and organizational issues received their due?

There are a number of identifiable reasons why the areas of people and organizational skills may be initially discounted.

- *Visibility*: Hardware has a definite physical substance to it, even if we are only looking at pictures in a catalog. Pictures of reports or computer screens can physically represent even software. Organizational issues do not have the same physical visibility, especially in comparison to true crises, such as half the work force going on strike.
- *Measurability*: Along with visibility, hardware and software also have a far higher degree of measurability. The hardware literature virtually buries us in numeric specifications while the software literature lists countless specific features.
- *Predictability*: The specifics of organizational issues are typically quite difficult to predict because they remain contingent upon the complex reactions of individuals and groups. While these reactions may be fairly predictable to the experienced professional, the predictability appears weak compared with the more visible and measurable hardware and software areas.
- *Accountability*: Handling organizational issues or problems would seem to fall within the normal responsibilities of the managers of the various areas. The manager is supposed to be the "expert" in handling people.
- *Respectability*: To people with technical and scientific backgrounds, the area of organizational issues is a fuzzy one filled with people with "soft-science" backgrounds.
- *Timeliness*: Conducting organizational processes such as extensive planning at the beginning of an IS project is often regarded as delaying the "real work".

4. Resistance to change

Typically, less organizational resistance occurs in a small organization than in a large one. However, a small organization usually has fewer resources to handle the problems that do arise on either the technical side or the change management side.

Impacts of a new IS can oscillate according to roles. For example, if the major impact is on the physician, there might be little impact on the staff aside from having to deal with an unhappy physician. Conversely, if the major impact is on the staff, there might be little direct impact on the physician except for having to rely upon support from an unhappy staff [9,10].

Existing organizational and/or people problems often surface during the implementation of new technical systems. Instead of waiting for latent problems to emerge, organizations should deal with managerial problems before implementing new technology. If it is not possible to effectively handle the problems, the organization must at least avoid placing blame for the problem on the technological system.

5. Managing the change

While there are many definitions of change management, one that we have found effective is "change management is the process of assisting individuals and organizations in passing from an old way of doing things to a new way of doing things" [1]. Change management is not a miracle and it is imperative that it is not abused within an organization. Namely, do not expect change

management to "manipulate" the end-users to forcibly adopt a system that is "not-likable to them".

Change management should start early in a technical process, not in the middle of a crisis. When you are in the middle of a crisis, it is too late for change management; you are ready for crisis management. We have found that the following statement helps people to understand when to use change management: "when you are up to your midsection in alligators, it is too late to remember that your first objective was to drain (change management) the swamp!" It is easy to change the things that nobody cares about. It becomes very difficult when you start to change the things that people do care about, or when they start to care about the things that you are changing.

The need for making major changes starts at the conceptual level. When we view majestic buildings, companies with outstanding profits, or a program so excellent it makes us envious, we need to step back and realize that these outcomes do not normally occur overnight. After the conceptual level, there is commitment and an understanding of what needs to occur to make that outcome happen. With a new building, someone first decides that a building should be constructed for a specific purpose. Then one must take into consideration the issues of where, when, how, etc. The time and effort spent well before the ground breaking occurs largely determine the ultimate value of all the activities performed from the ground breaking to the completion of the building.

Before beginning the change process how would you answer the following questions that assess organizational climate?

1) What have been the most significant information technology implementations in the last 3 years? Who was involved in the implementation? Was the implementation successful?

2) What is the balance of power between the people and roles such as presidents, vice presidents, hospital administrators, department chairmen, deans, chiefs of service, etc.?

3) Would you describe your organization as relatively stable or are there definite cultural changes occurring? If yes to the latter, what are they?

4) What is the general level of pressure and stress within your organization? If it is high, what is causing it?

Anyone wishing to make changes within an organization with minimum levels of trauma must first understand that organization's power bases structures, reward systems, and so forth. Understanding these issues is critical for developing appropriate strategies at the appropriate times and for involving the key players within the organization. If you find yourself unable to comfortably answer the above questions for an organization in which you have spent over a year, this is a definite indicator that you have an underdeveloped set of organizational antennae. If you do not have the time or desire to change this, you may well need expert outside help to assist in these organizational analyses.

To be successful, the informatics change leader must understand and constantly monitor four key concerns: point-person role, knowledge and commitment, formal and informal powers, and rapid shifts in focus.

5.1. Point-person role

The change leader is the "point" person for the change that happens, and may well become a "symbol" of this change to those unhappy with it. Stresses within the organization or the environment that do not directly

involve the particular change will still often have an impact on the change leader. One effective strategy is to seek assistance from a "champion" who is from the same group where the change will occur.

5.2. Knowledge and commitment

The change leader must be both knowledgeable and committed. Knowledgeable means an understanding of not only the organizational issues but also of the technology and the concept of systems. The person must be respected for his or her particular knowledge and must be firmly committed to the project.

5.3. Formal and informal powers

The change leader must have the necessary formal and informal powers within the organization to lead the change. The person could have formal organizational power, such as the title of CIO, but without personal intra-organizational respect, he or she will not be successful. On the other hand, someone with high informal power within the organization may lack the formal power necessary to override the anti-change views of a minority group. The change leader must be recognized as a powerful and legitimate organizational leader.

5.4. Rapid shifts in focus

The role of change leader typically requires good skills in technical, human, and conceptual areas, as discussed earlier. More importantly, the change leader has to be able to constantly and rapidly shift between these skill areas on any given day. This kind of mental flexibility is critical. While successful change leaders must certainly have the ability to plan and organize well, they must also have the mental flexibility to deal with interruptions, changes in plans, and changes in the area and level of focus.

Because technology investments are largely made up of things (i.e. hardware and software), it is easy to make the mistake of believing that a technology is implemented once it has been bought and installed. In fact, nothing works without people. These human issues become magnified in the process of redesigning work processes. Many work process redesign projects focus exclusively on technology and fail to address the human and organizational aspects of work. In these instances, organizations fail to explore non-technical solutions to improve organization processes such as training or changes in structures, procedures, and management practices. Most often, technology strategy drives organizational change. While the business strategy may be clear, it is often not reflected in a defined organizational change strategy. Too many technically sound applications have failed because of sabotage by users who like the old ways that things were done. Effectively managing resistance to change and helping convert that resistance into commitment and enthusiasm is a planned process. New systems should enhance the quality of work life and increase responsibility, empowerment, and motivation.

Change is difficult, but it eventually happens. Some of the change is smooth and some of the change difficult; nonetheless, change happens. It is not always easy to know exactly why a particular group resists change. However, experience shows that an intelligent application of a change process coupled with a sound technological implementation plan leads to more rapid and more productive organizational introductions of technology. The process can be expensive in terms of time and energy, but does not approach the

cost of an expensive technical system that never gains real user acceptance.

6. Summary

Many health informatics implementations are less than completely successful. In some cases, the systems have not been outright failures, but they have failed to meet the user expectations. These failures can be attributed to a combination of technical shortcomings, project management shortcomings, organizational issues, and information explosion. All these shortcomings lead to stress and change-resistive behaviors. The goal is to include change management strategies in an effective manner for successful health informatics implementations.

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