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INTRODUCTION

This paper draws upon the work of American Management Systems (AMS) and other practitioners in describing how a realistic and effective IT change model can be constructed. This model will be the basis for our future research into how organizations *actually* implement change.

A recent study on IT deployment described these findings (Hackett, 1998):

- Only 37 % of large IT projects were completed on time and only 42% within budget.
- For short-term projects (less than 30 days), the on time / within budget figure was only 80%.
- Only 8% of IT staff were focused on strategic planning for future technology use.

Change stems from two primary sources: changes to information technology itself and changes to the internal working environment that new technology engenders. IT practitioners are effective at making physical IT changes, but often they ignore the non-physical changes. Physical changes to IT often lead to modification of processes used to conduct business. In adopting new IT, most organizations chase promises of efficiency gains (e.g., reduction to unit cost of production). Sometimes the cost of adopting newer technology requires a major investment that is difficult to justify on cost reductions alone. Often new IT becomes the impetus for organizations to become leaner and thereby quicker to respond to changes in the competitive environment (Hammer and Champy, 1993).

In addition, Osterman's (1991) survey of organizations adopting new IT revealed differences in productivity gains and quality improvements when human resource policies were supportive of the change. Organizations that provided employee support and training reaped greater benefits through technological change. Adopting new IT, therefore, not only focuses on physical changes, but requires users to embrace procedural changes.

An organization must effectively manage all aspects of IT change if it is to fully profit from it. That is why American Management Systems (AMS), an international systems integration firm, uses Change Management and Organizational Development experts to complement technology experts when implementing large IT projects (AMS, 1996)

CHANGE PRINCIPLES

AMS (1996) lists nine principles for understanding the traumatic nature of change.

- We must understand and appreciate our own reactions to change before asking others to change.
- Group behavior will change when there is a critical mass of people who decide to change.
- If leaders get too far in front, they will lose much of their support.
- Resistance to change is natural and should be expected.
- To decrease resistance to change, people must be engaged in the change process and helped to see how the change profits them.
- We cannot change another person's behavior – we can only influence it.
- Change requires people to learn, relearn, and adapt, all of which requires an atmosphere of psychological safety.
- At an organizational level, effective change management strives to determine "how everything is connected to everything."
- The leadership of first-line supervisors is critical.

AN IT CHANGE PROCESS

The change process described in this paper has six phases modified from that used by AMS.

Identify the Need for Change: The need for change should flow directly from IT strategic planning. Each specific change represents a problem – the gap between what we want (strategic plan) and what we have. Sometimes, however, the need for change originates at the operational level through self-forming teams (Meyer, 1995). INTEL refers to this type of change as "*creative dissonance*". Forigere (1991) suggests that such organizational needs must be sold to those end-users undergoing change by (a) pointing out alternatives to the existing problem, (b) dramatizing the end-users importance in solving the problem, and (c) convincing these end-users that they are capable of solving the problem.

Describe the Change: IT change can be described using a simple journalism model:

- **WHAT**: What are the specific IT changes to be made including desired status (goals) and current status. The gap between is the realm of change (Martin, 1995).
- **WHY**: Why are we making this change? How is it tied to organizational goals?
- **WHO**: Which stakeholders, both within and outside the organization, will be affected?
- **WHERE**: This includes not only geographic location, but also level of the organization.
- **HOW**: The change project should be organized into preliminary modules or parts.
- **WHEN**: Preliminary start and finish dates should be established for each preliminary module..

Assess the Change Environment: AMS attempts to identify those who can accelerate, slow, or block the change initiative. They do this "*battlefield reconnoitering*" by asking these questions. Who in the organization:
- Is driving the initiative?
- Seems to be resisting it?
- Is empowered to make decisions, allocate funds, align constituencies, and initiate action?
- Can make the change succeed or fail?
- Will be responsible for the change once it is implemented?

Position for Change: Following are some actions that take place in this phase:

- **Create a Steering Committee** of executive sponsors who can champion the change.
- **Establish Change Goals** that are attainable, yet "*stretch*" the organization to more than incremental change.
- **Design a Measurement System** so that change results can be measured and communicated.
- **Design an Effective Project Management System**.
- **Establish Change Team Credibility** in terms of competence, honesty, objectivity, and empathy ((Forigere, 1991).
- **Design a Training Program** that is structured and begins early in the project (Martin, 1995). Don't neglect training for change agents, if that is needed.
- **Begin to Sell the Change**: Forigere (1991) suggests that we can do this by (a) assuming the end-user perspective, (b) securing end-user commitment, and (c) using end-users (change heroes) to spread commitment
- **Design a Change Communication System**, which includes an honest appraisal of where we are in the change project compared to where we said we would be at this point.

Move Forward: There are key points to performing the actual change process:

- Measure and communicate results.
- Freeze positive behavior by giving rewards for change, such as assigning the latest equipment or allowing off-site training.
- Start shifting to user self-reliance by building end-user ownership of the change process.
- Reduce resistance by user involvement, prototyping and honest use of user feedback.
- Don't be afraid of repeating change steps that haven't succeeded well – don't try to hide mistakes.

CRITICAL SUCCESS FACTORS

There are several key factors that AMS believes to be critical to the success of any IT change project (AMS, 1996).

- Ensure senior management commitment.
- Be sensitive to people issues.
- Set aggressive improvement targets.
- Look to top performers for selling required changes.
- Measure and communicate.
- Try to achieve "early successes" – small but visible improvements that can be obtained early in the IT change project.
- Instill a sense of ownership in the change on the part of those undergoing the change.

THE CHANGE ENVIRONMENT

Changes occur more smoothly in an organizational atmosphere where experimentation is rewarded and failed projects do not automatically lead to censure. Doug Busch, Director of Planning and Technology at INTEL, tells of an IT change project which he championed, but that failed and had to be abandoned. Nevertheless, INTEL promoted him because of his innovative ideas, and because much of the project's failure could be traced to organizational factors beyond his control. Attempts at change must be rewarded, even if they prove unsuccessful. Otherwise, few people will be brave enough to try.

SUMMARY

IT change is pervasive and inevitable. Yet, many of our IT change projects have been unsuccessful. What is needed are systematic models for implementing IT change, a model with a theoretical foundation but grounded in the realities of the workplace. The model presented in this paper is a beginning to such n endeavor.

It will be the basis for a questionnaire that will be designed to assess how organizations implement IT change.

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