Chapter XVI
Using Communication Norms in Socio–Technical Systems

Hans Weigand
Tilburg University, The Netherlands

ABSTRACT

Often socio-technical systems are designed simply on the basis of what the user asks, and without considering explicitly whether the required process structure is right and wrong. However, poor communication may cause many problems. Therefore, a design cycle should always include diagnosis, and in order to be systematic, the (process) diagnosis should be model-based and driven by explicit communication norms. Such a diagnosis process is outlined and illustrated with a case from a financial service process. Furthermore, it is shown that recognition of universal communication norms can also improve tool design and quality management of socio-technical systems in general.

On the other hand, in a society whose communication component is becoming more prominent day by day, both as a reality and as an issue, it is clear that language assumes a new importance.

—Jean-Francois Lyotard

INTRODUCTION

Traditionally, designers of information systems often follow a "waiter strategy". That is, they collect requirements from the customer, and build a system that meets these requirements. However, what if the customer asks for a wrong system, a system that arguably will cause trouble in the form of misunderstandings, inefficiencies and failures? So designers have learned to be a bit cautious: do not take the wishes of the users and the current ways of working at face value. However, what are the criteria that we should apply then? Is it just intuition based on experience? In this chapter, we suggest another more systematic way.

Before doing that, we first recall that today's Internet-age information systems are much more communication than computation systems. They include not only workflow management systems and enterprise resource systems, but also applications that support complex communication processes, like discussion and group decision making, and many kinds of collaborative work such as group authoring, often not under the control of one single organization. It is becoming increasingly essential to view the technical systems as being embedded in a social context, to consider the socio-technical system as a whole, including the people and their relationships.

In order to deal with these new requirements, Ronald Stamper has argued that we need to move away from the traditional information *flow* paradigm, in which positivistic modelling aimed at producing automated solutions is central. Instead, an *information field* paradigm is needed (Stamper, 2000). At the core of this paradigm are fields of norms. Norms bind groups of people together. Shared norms constitute what is called the "social reality" –something not given once for all, but constantly in the process of being redefined and renegotiated. Note that "norm" should not be interpreted in the narrow sense of laws or ethical rules imposed by some society or institution. A norm is any rule (mostly implicit) that we apply in our daily practice and that we expect others to apply. Often, but not always, they have a rationale: not following the norm has some undesirable outcome. There are several kinds of norms: how to behave in a certain situation, how to interpret a certain term, how to draw conclusions; etc.. Some norms are context-specific; some are more general or even universal.

This chapter focuses on an important subgroup of norms that can be characterized as "communication norms", for the obvious reason that these are the norms most relevant to communication systems. We are specifically interested in general norms that can provide guidance in process diagnosis and design. What exactly falls under the heading "communication norm" will become more clear when we move on.

Norms are to be distinguished from goals (Mylopoulos, Chung, Yu, 1999). A goal is a certain state that a stakeholder wants to reach or to maintain, whereas a norm corresponds to a shared expectation. A goal is usually specific to a certain time and a certain context, whereas norms tend to have a universal character (although the weight given to the norm may differ from one context to another; and there are also particular norms). For example, profitability is an economic norm in the market; to increase sales of our company by 20% next year, is a goal.

In (Weigand, De Moor, 2003), a certain list of general communication norms was presented based on an analysis of workflow models in the Language/Action Perspective (LAP—cf. Winograd, Flores, 1986; Denning, Medina-Mora, 1995; Dietz, 2005). For example, a communication norm is that organizational actors should commit explicitly to a request, or decline explicitly. If not, the requester and the executor may easily have different expectations with disappointments as a result. Some more norms on the way communication processes are realized by means of signs between actors are analyzed in (Weigand, De Moor, 2007).

The objective of this chapter is to show why it is recommendable to apply communication norms explicitly in process diagnosis, quality management and group system design, and how to do it. The aim is not to present a list of specific norms (we refer to the publications mentioned above for a proposal), but to show their use.

Our view on diagnosis is that it is an essential step in the design cycle. It cannot be replaced by just collecting requirements. In certain design approaches—evolutionary development in particular—diagnosis is even the most important step. These approaches are very suspicious of design projects aimed at reaching an abstract desired situation rather than solving a concrete problem. Indeed, such projects tend to have a high failure rate.

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