Workflow analysis with communication norms

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Abstract

The language/action perspective (LAP) as orginally introduced by Winograd and Flores has inspired several tools and information system design methodologies. The goal of this article is to make the communication norms underlying various LAP workflow loop models (DEMO, ActionWorkflow) explicit and to contrast them with the auditing norms of internal control. It appears that the communicative action paradigm embedded in DEMO and the customer satisfaction orientation of ActionWorkflow lead to norms which resemble the ones required by internal control, but there are some important differences. For that reason, we propose an extended workflow loop model that distinguishes between customer relations and agency relations. Whereas current LAP approaches do not take agency relations explicitly into account, the extended workflow loop model allows us to analyze the effects of delegation on communicative processes. A framework is offered for the normative analysis of workflows based on a number of formalized communication norms.
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1. Introduction

During the last two decades, the language/action perspective (LAP) as orginally introduced by Winograd and Flores in 1986 [21] has inspired several tools and information system design methodologies. ActionWorkflow [12] and dynamic essential modelling of organizations (DEMO) [7,8] are two approaches that offer a special modelling method for business processes based on

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LAP. In contrast to data-oriented methods such as state transition diagrams, or UML interaction diagrams, LAP modelling is based on the notion of *communicative action*. This means that communication is viewed at the level of social relationships. For example, a request is aiming at the performance of a certain action, but it is also an action itself. A successful request creates an obligation, and although the physical world has not changed yet, the social world has. Viewing communication at the level of social action means that the focus is not on the efficient trans-mission of some data content from one place to another, but on organizational coordination. This is in line with the two major philosophical sources of LAP: on the one hand John Searle, who has placed his speech act theory explicitly in the context of human institutions [16], and on the other hand Jürgen Habermas, who has developed a theory of communicative action as part of a so-ciological critique on modern coordination structures [10].

From a coordination perspective, communication processes are more than sequences of com-municative acts. The LAP perspective imposes a certain structure on communication processes. In the case of DEMO, this is the transaction paradigm, in the case of ActionWorkflow, the Ac-tionWorkflow loop (see Section 3). This imposed structure excludes certain "ill-formed" pro-cesses. Data-oriented approaches do not impose much: it is not difficult to draw a use case diagram that is syntactically correct, but does not make any sense as communication. Some process-oriented approaches in business process modelling are based on Petri Nets. Petri Nets have the advantage that formal verification techniques can be used to test certain properties. However, a Petri Net in itself does not impose more communication structure on the process than a data-oriented approach.

An important advantage of the LAP approaches—the structure they impose—is sometimes also a point of criticism. According to Suchman and others, the ActionWorkflow loop is too restrictive [18]. It is said that in practice the analyst is confronted with situations that do not adhere to the workflow loop principle. The crucial question is of course not whether such situations occur, since that is obviously the case, but how to evaluate such a deviation. If the deviation turns out to be a distorted communication process, then it is a virtue that the LAP model indicates how this process must be redesigned. However, in order to make a strong case for the advantage of such a normative application of the model, it is essential that the normative principles underlying it are explicated. *Why* is it so important that the "loop is closed", as ActionWorkflow claims?

The critique of Suchman was particularly aimed at the *imposition* of norms in systems such as the Coordinator. Users would be forced to make all their commitments explicit, and this would introduce just a new form of bureaucratic control. Whether the Coordinator was as intruding as Suchman suggested, is a matter of discussion. What the argument makes clear, however, is that the *recognition* of certain norms should be distinguished from the *imposition* of these norms. In this article, we want to analyze the communicative norms in workflow situations. These norms can be used, for example, to diagnose practical situations and explain why some situations are problematic. The norms can also be used to suggest alternative structures. However, the question whether the systems allow norm-conflicting behavior, or whether the organization allows norm-conflicting behavior, must be addressed in its own right. In doing so, the *costs* (economic, social, personal) related to deviations must be taken into account, as wells as the *benefits* of adhering to the norms. In addition, the *feasibility* of imposing these norms needs to be considered. Finally, there is also a *cultural* aspect; after the Enron case in the US and similar cases in other countries, the question of norms in business is receiving more positive attention than a few years ago.