

An Investigation of Model Quality from the Activity Modality Perspective

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Models are indispensable tools in IS design work. In addition to the IT-artefact itself, its organizational context needs to be modelled, since the artefact cannot be designed in isolation. Examples of such organizational models are business process models and Enterprise Architecture (EA) frameworks (Wikipedia, 2012).

The importance of modelling has brought about an increasing interest in the *quality* of models (Recker, 2007; Rittgen 2010), and several criteria have been suggested for evaluating model quality (Moody, 2005). However, the suggested criteria have been criticized as insufficient for capturing the social and purposeful-oriented character of modelling, which in turn can be traced back to unclear epistemological foundations of modelling approaches (Recker, 2007).

As a consequence, crucial modelling aspects may be overlooked. For example, the complexity of existing EA frameworks makes it extremely hard for stakeholders to agree on models at the level of detail necessary for implementing the IS in the organization. Consequently, virtually no practical results of IS design based on EA-models are reported in the literature.

Thus, if we wish to advance modelling practices beyond its current state of play, we need to reconsider the very foundation models are based on. Models should be useful and easy to grasp for the human mind. This instrumental character of models implies that model quality must be ultimately grounded in our innate predispositions for acting. I have proposed that such faculties can be comprehended as *activity modalities*: objectivation, contextualization, spatialization, temporalization, stabilization, and transition (Taxén, 2009). The activity modalities can be seen as the brain's way of integrating sensations arriving in various sensory modalities into a coordinated and purposeful action percept. Differently put, the activity modalities provide an analytical instrument for investigating the entire link from neural and biological predispositions to purposeful acting in social contexts.

For IS design, the perspective of activity modalities implies that models should be aligned with the modalities and their interdependencies for maximum efficiency. Thus, models should render at least the following dimensions: the object in focus, i.e. the IT artefact (objectivation), its context (contextualization), relevant information in that context (spatialization), actions towards the object (temporalization), rules for proper actions (stabilization), and the transition to other relevant contexts (transition).

With the construct of activity modalities as a guiding framework, mainstream modelling approaches can be analysed. In particular, I focus on the Business Process Model Notation (BPMN, 2012) and the Zachman EA framework since these are dominating modelling practices today. The investigation shows that neither one is particularly well aligned with the activity modalities. For example, BPMN lacks modelling constructs for information modelling (spatialization) and modelling of business rules (stabilization).

I also investigate an alternative set of models that appear to be better aligned with the activity modalities. Examples of such models are the system anatomy (Taxén, 2011), DEMO (Dietz, 2006), and Information Flow Diagrams (Taxén, 2009). Each one of these models displays certain qualities in line with the modalities.

The conclusions of the investigation can be summarized as follows. Mainstream modelling practices are not grounded in human predispositions for action. As a consequence, these practices aggravate IS design work rather than facilitating it. If this trend is to be reversed, an alternative modelling foundation has to be developed, which is able to integrate all aspects of human action. The construct of activity modalities is an attempt to proceed in that direction.

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