

## Chapter 52

# Informed Decision Making With Enterprise Dynamic Systems Control

**Sérgio Luís Guerreiro**

*Instituto Superior Técnico, University of Lisbon, Portugal & INESC-ID, Portugal*

### ABSTRACT

*Information systems are designed, implemented, and managed using abstractions layers to cope with the huge organizational complexity that is nowadays posed, and also to facilitate the discussion between the different stakeholders of an organization that have diverse perspectives and interpretations of it. Those discussions drive to the classical requirements elicitation stage that aims at identifying the best short-, mid-, or long-term models to view, understand, and operate the organization and to facilitate the forthcoming IS transformations. This chapter conceptualizes and identifies open research challenges in the scope of informed decision making applied to business processes execution environments. Control is used to cope the workarounds that occur while actors operate. A workaround occurs when an actor decides to adapt, improvise, or perform other changes to one or more aspects of an existing model. In some situations, a workaround could indicate new, and innovative, ways of actors performing their duties. It is not necessarily harmful for the organization.*

### INTRODUCTION

The information systems (IS) are designed, implemented and managed using abstractions layers to cope with the huge organizational complexity that is nowadays posed and also to facilitate the discussion between the different stakeholders of an organization (Laudon & Laudon, 2012) that have diverse perspectives and interpretations of it. Those discussions drive to the classical requirements elicitation stage that aims at identifying the best short-, mid- or long-term models to view, understand and operate the organization and to facilitate the forthcoming IS transformations. In this line, abstraction is a powerful intellectual tool that, in a given instant in time and context, allows to leave some other details for further analysis. In the subsequent instants of time and contexts, the abstraction level decreases and forces the

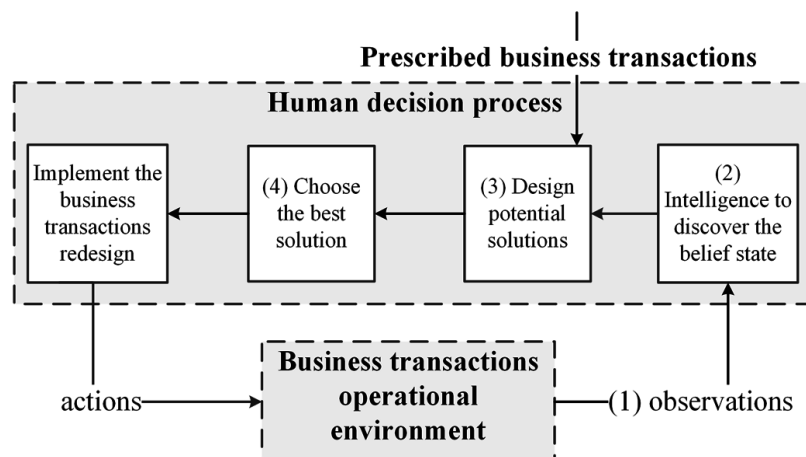
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stakeholders to further specify the models. Accordingly, Hoogervorst (2009) explains that business processes models are the result of applying design constraints for a particular organizational reality, which recalls to useful abstractions in order to share a common understanding between the stakeholders that have diverse interpretation of it. In fact, in the IS domain, business processes models (OMG, 2013; Archimate, 2015) are frequently used to describe the way that operations are expected to happen while the actors perform their activities. However, the business transaction models *per se*, are not sufficient and do not guarantee that the business actors perform them accordingly during operation. This unconformance phenomenon (Van der Aalst, 2011) occurs by many and diverse reasons, organizational actors perform workarounds at operation time that could be extremely different from the previous prescribed business transaction models. Operation is the collective activity of all the elements within the organization and in the surrounding environment. It encompasses both the productions performed by the elements within the organization and the interactions with the organizational bounds (Dietz, 2006).

Hence, an actor is autonomous in deciding what to do next, and thus misalignments occur between the business transaction models and actor's operation. Moreover, business actors, individually and/or collectively, operate the organization and also administrate and steer it, by means of observing the state of the world and then acting with purpose to change its state. Moreover, an organizational actor is simultaneous a controller agent and a controlled agent within an enterprise. This reason is why steering the operation of business transactions, by the mean of the correct business rules, is strongly needed nowadays on organizations.

As depicted in Figure 1, organizations require steering for continuous verifying if the desired models are satisfied and then to take purposeful actions to correct them. In line, systems control area identifies the need to construct a classic cycle of observation, decision and control to guarantee that the operation of a system satisfies within the desired conditions (Franklin et al., 2009). Accordingly with these principles, Figure 1 enforces an informed decision-making process, which in practice is a steering cycle with the following counterparts: observation (cf. Figure 1(1)), assessing the environment (cf. Figure 1(2)), designing the potential solutions (cf. Figure 1(3)) and choosing the best solution (cf. Figure 1(4)). These counterparts recall to the management competences and are mainly human based. Nevertheless,

*Figure 1. Steering cycle: the business transactions are the organizational objects to be controlled, the observed variables are its states and the control variables are the business transactions redesign initiatives*



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