

Multi-agent systems (MAS) are emerging as a promising paradigm for conceptualizing, designing and implementing large-scale heterogeneous software systems. The key advantage of looking at components in such systems as autonomous agents is that as agents they are capable of flexible self-organization, instead of being rigidly organized by the system's architect. However, self-organization is like evolution—it takes a lot of time and the results are not guaranteed. More often than not, the system's architect has an idea about how the agents should organize themselves—what types of organizations they should form. In our work, we tried to solve the problem of modelling organizations and their roles in a MAS, independent of the particular agent platform on which the MAS will eventually run. First and foremost, we have proposed a metamodel for expressing platform-independent organization models. Furthermore, we have implemented the proposed metamodel for the Jade agent platform as a module extending this framework. Finally, we have demonstrated the use of our module by modelling three specific organizations: remote function invocation, arithmetic expression evaluation and sealed-bid auction. Our work shows how to separate the behaviour acquired through a role from the behaviour intrinsic to an agent. This separation enables organizations to be developed independently of the agents that will participate in them, thus facilitating the development of the so-called open systems.