



# The Relationship Between Ontology and Modelling Concepts: Example Role Oriented Modelling

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## Abstract

This paper focuses on role oriented modelling and does so by outlining what it is and how it can be applied. This paper attempts to build a basis of a structured way of thinking, working, modelling, and implementation of roles. It endeavours to provide a standardized terminology, build common understanding, and make available the standardized and integrated role templates/artefacts. It helps to reduce and/or, if needed, enhance complexity of role modelling, engineering and architecture principles. While this paper should be seen and used as a detailed description of how one could work with roles, it does not have all aspects of role modelling, engineering and architecture principles covered. It, however, provides the means of how to go about role oriented modelling.

# Introduction

This paper focuses on role oriented modelling, which is based on the role ontology (von Rosing & Zachman, 2017) and a part of the foundational enterprise ontology developed by the Global University Alliance (von Rosing & Laurier, 2016). For further reading on the role ontology and the relationship to the foundational ontology, core reference ontology, domain ontology and the task ontology, we refer to the paper “The need for a Role Ontology” published by the International Journal of Conceptual Structures and Smart Applications archive, IGI, 2017. This work therefore establishes the relationship between Ontology and Modelling concepts. It elaborates on the numerous applications of role-oriented modelling to various different concepts. The authors also realize that role-oriented modelling fits just as good to value, service, process, information, system applications, data as well as technology. Subsequently, while there will be various examples and applications in the different subjects illustrated, in order to demonstrate the ‘role’ concepts meaningfully, there was chosen a focus area. The focus area chosen is how role oriented modelling relates to the concepts of process modelling. Why processes? Well, because a process can include data objects, data stores, can be automated in application systems, can include any kind of technology, produce services and creates value. We thus believed that process modelling was ideal to illustrate the role relationship between the various concepts mentioned. While process modelling focuses on the design and description of processes and the roles e.g. user task within, role modelling addresses the need for clarity in developing roles that are founded around the function and tasks they need to do, the processes as well as services involved in achieving the performance and value expectations applied to them. Although it would be very difficult to find end-to-end processes or flows that do not have roles within them, the modelling of the process based on its role oriented distribution of objects, tasks, data, and services is a subject that has not received much attention. In addition, we have to acknowledge that we live in a time where the workforce is predominantly

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knowledge workers, and that there is a gap in most current modelling practices. Resolving this gap is just as important in process concepts as well as in other modelling, engineering, and architecture concepts. Particularly as it is the roles, acting within an organization or teams, which brings to life the business strategy, achieve the objectives, are the basis for

performance and are key to value creation. In order to make it practical and have the ability to replicate the way of modelling, engineering and architecture, we will provide tools enabling practitioners to break down (i.e. decompose) the “roles” and the relevant tasks and objects into the smallest parts that can, should, and need to be modelled. These can then connect (i.e. compose) the role objects (through mapping, simulation, and scenarios) before being in a position to build them in the wanted views (i.e. models). By using maps, matrices, and models appropriately, we ensure that we illustrate how to use artefacts

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around role oriented modelling, by not only providing standardized role artefacts, but also propose a consistent way of how to connect critical context around roles. All facilitating the ability to model, engineer and architect the right role context.

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