

# The Impact of an Ontological Theory of Relations in Enterprise Modeling

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**Abstract.** Conceptual models capture invariant aspects of entities in the domain of inquiry along with the relations they establish. Explicit attention to these relations is a key aspect of the Unified Foundational Ontology (UFO), which proposes the reification of mediating entities called *relators*. Examples of relators include marriages, enrollments and employments. Relators ‘connect’ entities in the scope of a relationship, and become the focus of our modeling effort when applying the relator pattern. This pattern allow us to zoom in on what would usually be represented as an opaque predicate (e.g., ‘married to’, ‘enrolled in’, ‘employed by’). As a consequence, we may identify roles played by the relata in the scope of the relation, we may explore the various types of relators (in relator taxonomies), as well as identify the decomposition of relators into parts (relational aspects that inhere in an entity but depend on another related entity). Over the years, we have applied the notion of relator and the relator pattern in a number of organizational domains. This has led to improvements to enterprise modeling, with consequences to the representation of phenomena involving services, service networks, contracts, trust, value and risk. A number of examples from ArchiMate (and its various extensions) reveal the benefits of applying UFO’s micro-theory of relators to enterprise modeling.

*Short bio.* João Paulo A. Almeida is Associate Professor at the Federal University of Espírito Santo, Brazil, and Senior Member of the Ontology & Conceptual Modeling Research Group (NEMO). He holds a Ph.D. in Computer Science from the University of Twente, The Netherlands. Since 2007, he has been working on the application of ontologies in conceptual modeling, enterprise architecture and enterprise modeling. He is a senior member of the IEEE and of the ACM. He has served as Dean of the Graduate School in Computer Science at the Federal University of Espírito Santo, as member of the Executive Committee of the International Association for Ontology and its Applications (IAOA) and as chair of the Steering Committee of the IEEE EDOC Enterprise Computing Conference.