

Toward an Occupation Ontology, OccO

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Abstract

The classification of occupations has applications in various domains, such as economics, social policy, medicine, public health and education. The first occupational classification standard - the International Standard Classification of Occupations - was released in 1958, and has since become the worldwide reference. However, many individual nations have developed occupational classification taxonomies tailored to local needs, including: (1) US Bureau of Labor Statistics Standard Occupational Classification (US SOC); (2) The UK National Statistics Standard Occupational Classification 2020; (3) The European Skills, Competences, Qualifications and Occupations. While these taxonomies reflect decades of development and curation, they differ from one another significantly, are not computationally interoperable, and are based on an occupation coding that is too restrictive. To address these deficiencies, we have initiated the development of the Occupation Ontology (OccO). OccO extends from the widely-used top-level Basic Formal Ontology (BFO), supporting interoperability among other BFO conformant ontologies. The current OccO alpha version ontology Current OccO uses the US SOC system as its foundation, and provides terms needed to distinguish, for example, occupation holders from the roles they bear, as well as distinguishing skills, abilities, and knowledge associated with an occupation from occupational activities in which they are manifested. We compare OccO representations of occupations to those found in Wikidata, a leading semantic web resource, in the interest of highlighting deficiencies in the latter. Lastly, we note that if endorsed by occupational standards organizations, OccO could (1) provide motivation to reconsider decades-old occupational classifications; (2) stand as a well-defined, updated, common standard that could be extended as needed for country-specific application ontologies, (3) support the integration of information representing medical, environmental, and educational factors relevant to occupational classifications; (4) improve search and analysis capabilities for job seekers, economists, and other researchers; (5) support integration of semantic web representations to ensure they match occupational standards.

Keywords

OccO, occupation, Occupation Ontology, US SOC.

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