Abstract. In the last two decades, there has been a growing interest for developing Web service-based projects, or for generating Web service interfaces from legacy software. This growing interest corresponds to the evolution of telecommunications, the emerging of open and interoperable protocols and standard languages, and the increasing usage of Internet as a public wide area net for connecting users, businesses and software agents. As a result, many Internet Web service providers have taken the advantage of using Internet as an open window to the entire world to offer their services through public repositories. Currently, many applications are being developed with the incorporation of multiple Web services to solve complex problems. Similarity measurement between multiple Web services represents a corner stone to more specialized and complex tasks such as classification, clustering, composition, substitution and optimization. Without measuring, it would not be possible to classify or generate clusters of a set of Web services, or to select particular services to execute composition, neither substitute a non functional service from a workflow, nor substitute to improve the performance of a supply chain, etc. In this paper we deal with this particular topic, aiming at designing the required computational infrastructure to support further intensive and complex tasks such as composition, substitution and optimization of sets of Web services. Therefore, in this research we provide a deeper insight of the key design elements of Web service similarity measurement.

Keywords: Web service substitutibility, structural similarity, functional similarity.