

## **Abstract**

### **The purpose**

The aim is to study the architecture of data integration systems based on semantic web technologies and prototyping of data integration.

### **The actuality**

Data integration involves combining data located in various sources and provide data to users in a unified manner. This process becomes important as the commercial problems (like when the two companies to merge their databases), and in scientific (combining research results from different bioinformatics repositories, for example). The role of data integration increases when the volume increases and the need for data sharing.

Large organizations usually have a huge database, which were designed by different people at different times and at present a semantically uniform data, but presented in different ways and different data models. Many decisions in this area insist on the replacement of outdated legacy systems, and other more modern and more flexible systems. This approach is often not cheap in terms of resources and time, which is not always acceptable.

The relevance of the research is to find opportunities for integration of data using semantic web technologies to solve the basic problems of data integration.

### **Problems that are solved**

The paper presents theoretical information about the architecture of data integration systems, levels and challenges of data integration and semantic web technologies.

### **Achieved results**

The result is a research prototype data integration system based on semantic web technologies. The testing of the prototype and analysis of the results of the performance of the system.

### **The scientific novelty**

The scientific novelty of the work is to investigate approaches to building systems, data integration and data integration architectures.

### **The practical value**

The practical value of the work is to develop a prototype data integration system based on semantic web technologies.

### **Conclusions**

Systematized information on approaches to building data integration systems, analyzing the main problems associated with the integration of data, considered the possibility of using semantic web technologies to integrate data in the course of work was a prototype software system that enables you to integrate data from different relational databases.

The work contains 113 p., 21 figures, 14 tables, 26 sources.

Keywords: data integration, relational databases, semantic web, RDF, RDFS, SPARQL, OWL, D2RQ, IRI.