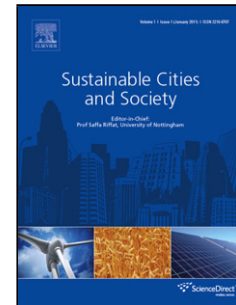


Accepted Manuscript

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PII: S2210-6707(17)31447-6
DOI: <https://doi.org/10.1016/j.scs.2018.01.047>
Reference: SCS 960

To appear in:

Received date: 26-10-2017
Revised date: 28-1-2018
Accepted date: 28-1-2018

Please cite this article as: Malik, Kaleem Razzaq., Farhan, Muhammad., Habib, Muhammad Asif., Khalid, Shehzad., Ahmad, Mudassar., & Ghafir, Ibrahim., Remote access capability embedded in linked data using bi-directional transformation: issues and simulation. *Sustainable Cities and Society* <https://doi.org/10.1016/j.scs.2018.01.047>

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Remote access capability embedded in linked data using bi-directional transformation: issues and simulation

^{a,b}Kaleem Razzaq Malik, ^{a,b}Muhammad Farhan, ^cMuhammad Asif Habib, ^dShehzad Khalid,
^{c*}Mudassar Ahmad, ^eIbrahim Ghafir

^a Department of Computer Science, COMSATS Institute of Information Technology Sahiwal, Pakistan

^b Department of Computer Science and Engineering, University of Engineering and Technology, Lahore, Pakistan

^c Department of Computer Science, National Textile University, Faisalabad, Pakistan

^d Department of Computer Engineering, Bahria University, Islamabad, Pakistan

^e Loughborough University, United Kingdom

krmalik@gmail.com, farhansajid@gmail.com, drasif@ntu.edu.pk, shehzad_khalid@hotmail.com, mudassar@ntu.edu.pk, Ibrahim_ghafir@hotmail.com

Corresponding Author: Mudassar Ahmad (mudassar@ntu.edu.pk)

Abstract. Many datasets are available in the form of conventional databases, or simplified comma separated values. The machines do not adequately handle these types of unstructured data. There are compatibility issues as well, which are not addressed well to manage the transformation. The literature describes several rigid techniques that do the transformation from unstructured or conventional data sources to Resource Description Framework (RDF) with data loss and limited customization. These techniques do not present any remote way that helps to avoid compatibility issues among these data forms simultaneous utilization. In this article, a new approach has been introduced that allows data mapping. This mapping can be used to understand their differences at the level of data representations. The mapping is done using Extensible Markup Language (XML) based data structures as intermediate data presenter. This approach also allows bi-directional data transformation from conventional data format and RDF without data loss and with improved remote availability of data. This is a solution to the issue concerning update when dealing with any change in the remote environment for the data. Thus, traditional systems can easily be transformed into Semantic Web-based system. The same is true when transforming data back to conventional data format, i.e. Database (DB). This bidirectional transformation results in no data loss, which creates compatibility between both traditional and semantic form of data. It will allow applying inference and reasoning on conventional systems. The census un-employment dataset is used which is being collected from US different states. Remote bi-directional transformation is mapped on the dataset and developed linkage using relationships between data elements. This approach will help to handle both types of data formats to co-exist at the same time, which will create opportunities for data compatibility, statistical powers and inference on linked data found in remote areas.

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