

# Un'architettura scalabile per la Spatial Multidimensional Analysis

Un'applicazione per l'Energy Big Data Management

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**ABSTRACT:** The *SIDECO (Sistema Dati Energetici aperti e CONdivisi)* project aims at designing and implementing a prototype software platform of Big Data Analytics as innovative analysis solution for energy policies, to support organizations, companies, professionals and communities. *SIDECO* data presents the characteristics of Big Data: large amounts of data produced by heterogeneous sources (smart meters, consumption invoices, supplier statistical reports, etc.), with different speeds and in various formats. This paper describes the Harmony process of integrated product development methodology adopted for system design and the design of the Energy Data Management as a Spatial Data Warehousing sub-system, thought to meet the needs of project users to have an easy-to-use tool to perform analysis and to extract summary information. The Spatial Data Warehousing adopts a unified architecture, which exploits the advantages of traditional user-oriented databases and NoSQL databases that with their scalability features lend themselves to the management of Big Data.

*Keywords:* Energy Data Management, Big Data Management, Energy System Engineering, Spatial Data Warehousing, Spatial OLAP.

## 1. Introduzione

Negli ultimi decenni il mercato dell'energia è stato oggetto di grandi trasformazioni, legate alle innovative politiche adottate dai governi internazionali allo scopo di incentivare la competizione tra le società fornitrici, elevando così la qualità dei servizi offerti agli utenti. Allo stesso tempo la crescente

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