

LITHUANIAN COMPUTER SOCIETY

VILNIUS UNIVERSITY INSTITUTE OF DATA SCIENCE AND DIGITAL TECHNOLOGIES

LITHUANIAN ACADEMY OF SCIENCES



14th Conference on

DATA ANALYSIS METHODS for Software Systems

November 30 – December 2, 2023

Druskininkai, Lithuania, Hotel “Europa Royale”

<https://www.mii.lt/DAMSS>

VILNIUS UNIVERSITY PRESS

Vilnius, 2023

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<https://doi.org/10.15388/DAMSS.14.2023>

ISBN 978-609-07-0985-6 (digital PDF)

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Financial Data Anomaly Detection Through Behavioral Change Indicators

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The research explores a method for analyzing financial data through the usage of Behavioral Change Indicators (BCI). It presents the BCI-based method for identifying financial anomalies, alongside the design of a architecture for detecting these anomalies. Furthermore, it introduces a theoretical architectural approach for recognizing financial irregularities, which has been effectively implemented using the Camunda business rules engine and rigorously tested with real financial data. Key Performance Indicator (KPI) stated as a quantifiable measure of performance over time for a specific goal. KPIs provide objectives for teams and insights that help members across the organization make better decisions. Key Performance Indicators practically help every area of the business move forward at the strategic level. For managing the fiscal health of the organizations are required to know about the performance as well as about Behavioral Change Indicators (BCI). Financial data of the organization may be analyzed from different views for discovery of certain patterns and/or anomalies. In this research there is provided list of financial data set anomaly detection steps; there is described how to use Key Performance Indicators (KPI) in organization's finance management process. There is presented detailed example of financial data analysis using BCI. Provided BCI calculation and visualization example helps to define the benefits of BCI usage in financial data analysis. The presented results are part of deliverables of research project "Enterprise Financial Performance Data Analysis Tools Platform (AIFA)". The research project was funded by European Regional Development Fund according to the 2014–2020 Operational Programme for the European Union Funds' Investments under measure No. 01.2.1-LVPA-T-848 "Smart FDI".