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Data Mining Technology of Country's Digital Development Level Assessing for Economic Development and Sustainable Growth: Multivariate Adaptive Regression Spline// Journal of the Knowledge Economy. Springer. <https://doi.org/10.1007/s13132-024-01958-1/>

The article deals with an optimal multivariate adaptive regression spline that describes the dependence of the countries' digital development on the national cyber security index and accessible business. It is based on predictive methods of intelligent data analysis. The objects of the study are 103 countries. The statistical data of the investigated indicators of these countries were used for 2021 according to the reports of the e-Governance Academy and the World Bank Doing Business Group. The originality of the research lies in the multivariate adaptive regression spline of countries' digital development level developed by the authors. The research is implemented within the scope of execution of four stages. A multiple regression model was developed to compare the results of the classical regression model and the results obtained by the MARS model, characterizing the influence of the national cyber security index and ease of doing business on digital development. Its development was implemented in the third stage. Both independent variables positively and directly affect the dependent indicator. At the same time, the influence of the "ease of doing business" index is four times greater than the national cyber security index, caused by the mass use of digital technologies in all business areas and the digital economy, and that is a stimulating factor of economic development. The absence of multicollinearity in the predictor variables was proven using the variance inflation factor test, and the statistical significance of the model — using the Student's test, coefficient of determination, standard error of estimate, mean absolute error, Fisher's test, and ANOVA. The MARS model was developed using the Salford Predictive Modeler software. The quality of the model is based on the generalized cross-validation criterion. The obtained results made it possible to comprehensively determine the influence of the cyber security national index and ease of doing business on the country's digital development under study and can be used by analytical departments of socio-economic objects (banks, financial institutions), national cyber police bodies, national cyber security coordination centers for economic development and sustainable growth.

Keywords Economic development · Sustainable growth · Digital development level · National cyber security index · Data mining · Multivariate adaptive regression spline.