**Early Warning System for prediction of credit quality deterioration using big data and natural language processing.**

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Time is of the essence when managing a bank’s portfolio risks: the sooner the bank can detect an increase in the risk, the better they can mitigate the losses. Use of an Early Warning Systems (EWS) is a well-established practice for monitoring of portfolio credit quality, it allows to prevent bank's unexpected exposures and minimize the credit losses. In times of business turbulence the role of EWS becomes central in identification of emerging risks, which enables the banks to take a timely action.

We develop EWS which gathers, aggregates and analyses alternative data sources in near real-time and applies natural language processing techniques to identify potential threats and risks to the credit portfolio. We further build a predictive algorithm to estimate effect on organisation’s clients, the industries and locations they serve.

In addition to traditional data sources, this research utilizes news articles, macro indicators and market data. The objective of research is to identify a set of risk indicators using sentiment analysis and artificial intelligence. Over 800 thousands data sources are utilized and millions of articles are processed to develop the learning algorithm and identify precise events, threats, performance indicators, and causal links based on deep learning techniques and industry experiences.