***Abstract*—**Small and medium enterprises (SMEs) play an important role in the economy of many countries. When the overall world economy is considered, SMEs represent 95% of all businesses in the world, accounting for 66% of the total employment. Existing studies show that the current business environment is characterized as highly turbulent and strongly influenced by modern information and communication technologies, thus forcing SMEs to experience more severe challenges in maintaining their existence and expanding their business. To support SMEs at improving their competitiveness, researchers recently turned their focus on applying data mining techniques to build risk and growth prediction models. However, data used to assess risk and growth indicators is primarily obtained via questionnaires, which is very laborious and time-consuming, or is provided by financial institutes, thus highly sensitive to privacy issues. Recently, web mining (WM) has emerged as a new approach towards obtaining valuable insights in the business world. WM enables automatic and large scale collection and analysis of potentially valuable data from various online platforms, including companies' websites. While WM methods have been frequently studied to anticipate growth of sales volume for e-commerce platforms, their application for assessment of SME risk and growth indicators is still scarce. Considering that a vast proportion of SMEs own a website, WM bears a great potential in revealing valuable information hidden in SME websites, which can further be used to understand SME risk and growth indicators, as well as to enhance current SME risk and growth prediction models. This study aims at developing an automated system to collect business-relevant data from the Web and predict future growth trends of SMEs by means of WM and data mining techniques. The envisioned system should serve as an "early recognition system" for future growth opportunities. In an initial step, we examine how structured and semi-structured Web data in governmental or SME websites can be used to explain the success of SMEs. WM methods are applied to extract Web data in a form of additional input features for the growth prediction model. The data on SMEs provided by a large Swiss insurance company is used as ground truth data (i.e. growth-labeled data) to train the growth prediction model. Different machine learning classification algorithms such as the Support Vector Machine, Random Forest and Artificial Neural Network are applied and compared, with the goal to optimize the prediction performance. The results are compared to those from previous studies, in order to assess the contribution of growth indicators retrieved from the Web for increasing the predictive power of the model.

***Keywords*—**data mining, SME growth, success factors, web mining.