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Guidance

Risk assessment methodology for good state-funded schools

Updated 2 November 2021

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This is the risk assessment process that Ofsted uses to assist in scheduling for inspections of good primary and secondary state-funded schools.

Introduction

We use risk assessment to ensure that our approach to inspection is proportionate and to focus our efforts where they can have the greatest impact.

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The risk assessment model helps us to identify schools graded as good that may potentially decline at their next inspection, and to help proportionally allocate Section 5 and Section 8 inspections. Schools more at risk of decline are more likely to receive a Section 5 inspection. It is important to note that the risk assessment process is not used to pre-judge inspection outcomes.

The risk assessment process

Risk assessment has 2 stages:

- stage 1 involves an assessment of each school based on analysis of school level performance and contextual data
- stage 2 involves a more in-depth 'desk-based' review of a wider range of available information

At stage 2 Senior Her Majesty's Inspectors (SHMI) review potential inspections to ensure the most appropriate inspection type (if any) is carried out.

Stage 1: analysis of school level data

Machine learning

We use a 'supervised machine learning' methodology to predict the probability of a good school declining to 'less than good' at their next inspection. Machine learning is a way of getting computers to make decisions that have not been explicitly programmed. A common application is classifying items into two or more groups.

In a typical application of machine learning, there will be a large dataset called 'training data' for which we already know which groups the items belong to. This is used to train the machine learning model to distinguish between unknown items. For example, a 'spam' filter can be trained by giving it emails that users have marked as spam and non-spam emails, and the algorithm works out the differences.

Machine learning applied to inspection outcomes

To develop the machine learning model, we use a training dataset that includes inspection outcomes from the previous academic year. The model then

retrospectively predicts the previous year's known inspection outcomes from data relating to the schools' characteristics.

Due to the pause in routine inspection during the pandemic, the latest full academic year of data available is the 2018/19 academic year.

Data sources within the training dataset include:

- schools contextual data
- performance (progress and attainment) data
- school workforce census data

The machine learning model 'learns' from the training dataset creating a series of decision trees to classify schools into those that are more likely to decline to 'less than good', and those more likely to remain good or improve to outstanding. The model is then tested on 'test data' consisting of inspection outcomes in a different time-period to the 'training data', to ensure its validity in predicting inspection outcomes.

Once the model is trained, the latest school performance and contextual data is applied to create risk scores, which estimate the likelihood that a school will decline at their next inspection. This is our 'raw risk score', which takes a value between 0 and 1.

It is important to note that:

- the risk model is only used at stage 1 of the risk assessment process and SHMI reviews follow on from this before selections are finalised
- risk model scores do not impact or influence inspection judgements

Inclusion criteria for stage 1 of the risk assessment

Stage 1 applies to good primary and secondary schools only. It does not apply to nursery schools, pupil referral units, alternative provision, or special schools. Schools with cohorts of fewer than 11 pupils at the relevant key stage are also not included in stage 1 of the risk assessment.

Stage 2: desk-based review

SHMI within each region review the information provided by stage 1 of the risk assessment process. Before finalising their selection, they additionally consider:

- the outcomes of any inspections that we have carried out since the last routine inspection

- qualifying complaints about the school referred to us by parents
- statutory warning notices
- data on potential gaming by schools, including details of schools with exceptionally high levels of pupil movement
- any other significant concerns that are brought to our attention

Timing of inspections

For further information on how schools are selected for inspection and the timing of inspections, please refer to the [school inspection handbook](#).

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