



CENTRE *of* EXCELLENCE *in* FINANCIAL SERVICES

Directed Risk Research Programme

DIRECTED RESEARCH PROBLEM STATEMENT

Research Theme	Model risk management in an AI/ML environment	Problem Nr.	PS21004
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Project Title: Model risk management in an AI/ML environment

1. Project Goal

The goal of this project is to quantify and manage the ‘model risk’ associated with the use of Machine Learning (ML) and Artificial Intelligence (AI) techniques.

2. Higher level description of problem

The goal of this project is to quantify and manage the ‘model risk’ associated with the use of Machine Learning (ML) and Artificial Intelligence (AI) modelling techniques.

‘Model risk’ can be defined as the risk of the potential adverse consequences from financial assessments or decisions based on incorrect or misused model outputs and reports.

The use of innovate techniques, like ML and AI, poses a challenge: the interpretability and often complexity of these models seem to make these class of models’ use risky compared to traditional statistical techniques. The black box nature of these models make it difficult to understand, and explain to external stakeholders.

However, these models seems to be promise of better prediction. The question is: at what price? Would you rather use a black box, because there is an insignificant increase in model performance. Or is the model performance such, that you are willing to accept the black box nature.

This project should research the use of AI/ML models and address specifically the model risk issue. This should be done by deciding on a measure to quantify model risk as well evaluating the performance of these ML and AI models compared to traditional techniques.

3. Project objectives

Define a metric to quantify model risk

Compare the ML/AI techniques to traditional statistical approaches.

4. Outputs required

A document/paper/article

5. Funding for project

To be completed by the DST.

6. Strategic value to directed risk research

This will give industry some guidance on the use of these models, especially in a highly regulated environment. Regulatory models should be explainable, AI/ML is not always. Having a metric that quantifies the model risk could give some comfort on the use of these models.