## Previous research

We need to solve the whole problem with a distribution of the investment and a rating system. And we have find some other researches to solve such problem on numerical simulation. One is the A Return on Investment as a Metric for Evaluating Information Systems by the Alexei Botchkarev and Peter Andru. This system provides a comprehensive structure for distribute the investment.

Another model is the tradition investment model, we draw lessons from this model by using qualitative analysis.

We also find some sophisticated machine learning algorithm for our clustering step, the classical model is the k-means++ algorithm by Arthur, D. and Vassilvitskii[2007].