



MID TERM REPORT

Easy Automation of Complex Decision Making

The Cognitive Garage knowledge studio is a useful tool that may be employed in decision-making tasks involving multilayered complexities.

We have identified three industries where such a tool can have a game-changing impact. By streamlining the real estate development process, automating political campaign strategies, and revolutionizing agriculture through data-driven insights, automation improves productivity and outputs. Our model considers multiple factors to provide real-time analysis and comprehensive interpretation, driving informed and effective decision-making.

Primary Team Number: 45

Maximizing Agricultural Yield and Productivity

The agricultural domain is in constant need for updation of technologies to maximize productivity. The problems of uninformed disease control, lost yield due to land and fertilizer overuse, incorrect sowing-harvesting patterns, lack of data driven pest control are to be addressed. Often, erroneous human decision making, data insufficiency and irregular manual assessments lead to farmer dissatisfaction, and less crop production.

The involvement of multiple parameters in crop management, to maximize the yield and profit which are overlooked in the current system, makes it an effective use case. The proposed system aims to address these complexities by incorporating multiple parameters, utilizing image monitoring, automating disease and pest control measures to improve the overall yield of crops.



What changes with automation?

Our system will have a strong focus on yield improvement, pest control, and efficient fertiliser scheduling. By monitoring the relevant factors and implementing a comprehensive plan, we aim to maximise productivity while ensuring the effective use of resources. Our system aims to phase in a comprehensive long-term plan for agriculture by closely monitoring weather conditions, cost-effectiveness, and soil parameters. This plan will provide vital information on the best crop combinations to sow, the optimal timeline for planting based on current market conditions and profitability, and critical decisions such as what type of seed to use, the appropriate type and amount of fertilizers, and strategies for pest monitoring and control.

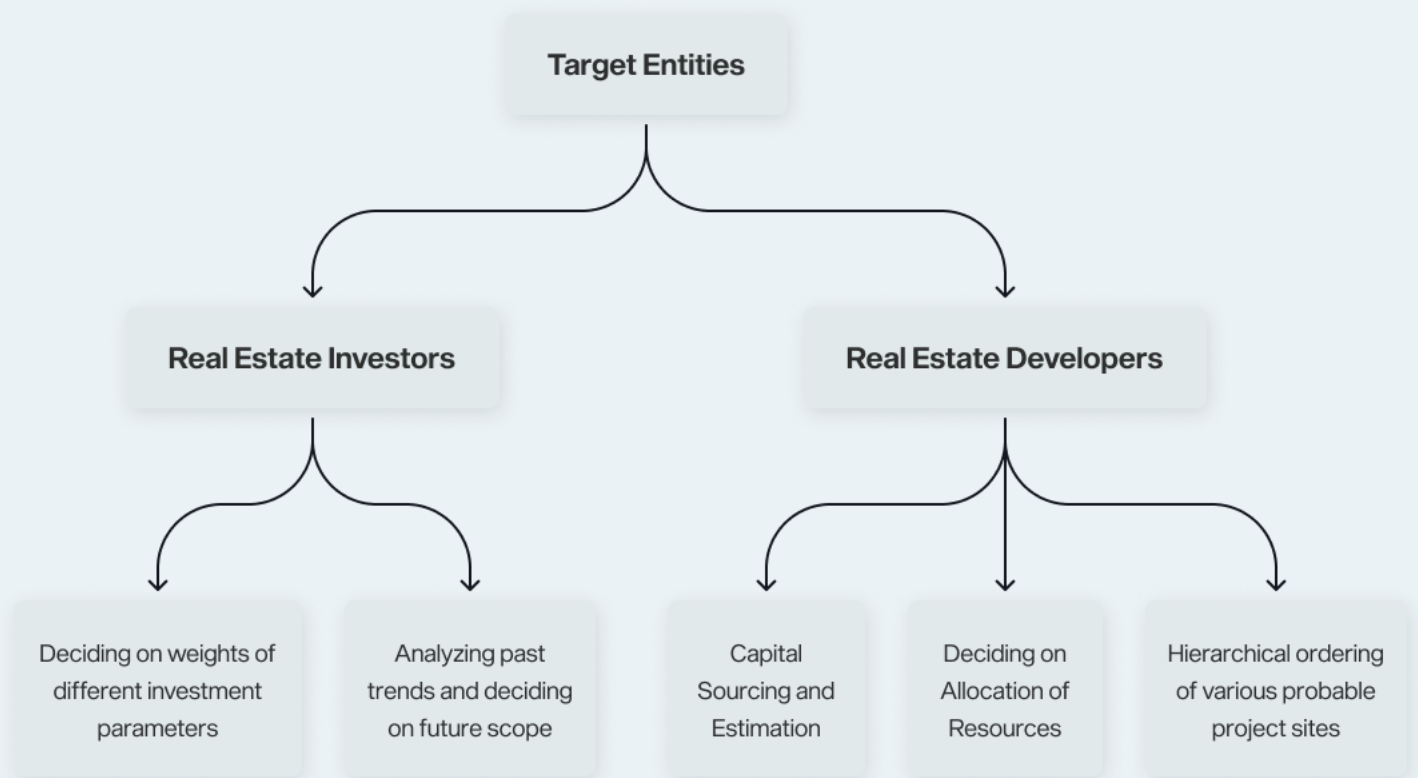
The analysed data is shared with the target entities who interpret the insights and take appropriate steps to achieve better results as desired.

Making Effective Real Estate Investment Decisions

Finding the most optimum locations for construction firms to build their new ventures is a tedious task. It involves analyzing various sites for construction based on unique characteristics and placing competitive bets according to profit margin, future occurrences, and demographics.

What changes with automation?

The model aims to rank project sites hierarchically based on their development scores and hence ensure better feasibility decisions to reduce failures as well as maximize ROI. It also works towards choosing the most appropriate location based on several fixed and dynamic parameters and frame decisions based on multiple capital flows. By ensuring an adequate supply of capital, the model deals with a major risk of capital mismanagement, causing the failure of 82.8% of construction companies. This decision-making process can be made for proper allocation of the workforce, equipment availability, and resource management to avoid taking on projects that aren't profitable and thus resulting in losses or razor-thin margins, which isn't exactly a sustainable business model.



The same model can also be adapted to evaluate the future scope of existing markets and complexes by feeding previous data and inserting current development parameters into the model. It can also prove to be highly beneficial for real estate retail investors (which have increased by 32%) and investors who aim to acquire the infrastructure of the real estate market. According to a report, the error rate is 95% for retail real estate investors, mainly due to the incorrect analysis of current market parameters and past trends. These decisions can be made more efficiently based on various factors, each with numerous weighted parameters.

Data Analytics Driven Election Campaigns

The lack of efficient data analysis often leads to ineffective and unsuccessful election campaigns. This in turn results in poor conversion rates, affecting the success of the political party.

The complexity lies in the large multitude of data points, currently being interpreted manually, which is cumbersome and often leads to incompetent decision-making.

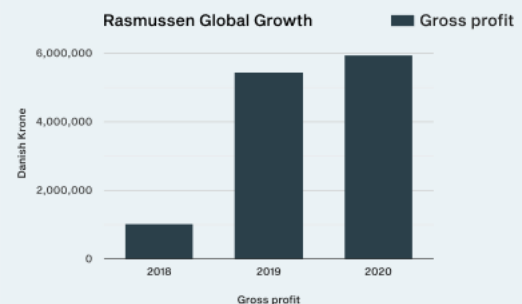


What changes with automation?

Political consulting firms currently face a major challenge in that they are manually allocating funds, determining areas to focus on, and target audiences. The most effective implementation of election strategies and optimal fund allocation depends on multiple factors such as demographics, voting patterns, anti or pro incumbency sentiments, electoral history and many more.

Data points in this domain fall into a variety of categories such as booth wise vote shares, inclinations, potential shift in political affiliations, neutral and fringe voters, financial aspirations and policy preferences, spread out across different constituencies. Effective data-driven analysis helps parties automate their electoral campaign strategies, manifesto changes, policy promises, social media monitoring, targeted communication etc.

Thus, our decision-making model can help political party clients as well as strategising firms to interpret voter centralised data for political consulting.



This graph represents the increase in the revenue and growth in one of the top political consulting firm