

**ASSIGNMENT FRONT SHEET**

**Course Name: ALY6050 20906 Intro to Enterprise Analytics**

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| **Module 3: Decision Making Models**  **Completion Date: 8th Due Time:12:00am** |

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**Executive Summary**

The growing power of decision models has captured the attention of many enterprises in recent years. Thanks to the combination of gargantuan amount of data as well as increasingly sophisticated algorithms, modeling has significantly increased corporate performances. The most effective use of decision model is to avoid common biases that often undermine leaders’ judgment. This paper presents some of the most popular Decision Models, the promises and pitfalls in their implementations. We also look at one empirical example and discuss real life application of the Decision Model in the Movies industry.

**Background and Literature**.

Decision Making is an intellectual process of choosing the most optimal and best options out of all the alternatives. Business Leaders, often times, have to reply on outside sources like Decision Models to help them make sound decisions. There is variety of Decision Models:

* Rational Model: Uses logical choice to maximize value and profitability of an organization
* Normative Model: Takes into consideration the leaders’ constraints and obstacles. It is best for quantitative judgment
* Administrative Model: Business leaders do not put emphasis on optimization but rather sacrificing: choosing an alternative that yields a value above the minimum acceptable value on a particular constraint. Despite negatively impacting the decision quality, such drastic measure not only saves times and effort but also reduces the high cost of delaying in decision or seeking for other alternatives for superior pay offs
* Political Model: This model does not apply standard operating procedures or rules. Decisions are reached after bargaining and negotiation between different coalitions. They are the results of compromise among subunits.
* Ethical Model: Emphasizes on including clients in ethical decision making process so that the clients will not be restricted to the choices that the companies make. The company can also ask for feedbacks.

From all of the above, the most effective model seems to be the Ethical Decision making models. Business ethics are the essence of a company and its executive board. Business ethics are also linked to performance of a corporation.(Verma, 2014) It is noteworthy to know that decision models work best in fields that considered the domain of expertise like wine testing against sommeliers experts. Nevertheless, one must always remember that no matter how advanced the models are, it is the business leaders that make the decisions. There are always things models cannot comprehend and it is up to the executives or leaders to inspire their followers to reach demanding goals. This distinction is simple but often overlooked. (Rosenzweig, 2014)

**Analysis**

First, we define the data uncontrollable inputs, and decision variables that influence total inventory cost.

* Data is usually constants which includes the annual demand and the cost per unit
* Uncontrollable inputs are the number that the manager does not have any authority over, because it is the customer demand, which is the supplier cost per order
* Decision variables are the decision maker has authority over like Opportunity cost



We would use the concept of EOQ to build a good decision model for the inventory after taking into consideration all types of costs: holding costs (Variable cost) and ordering cost (Fixed cost ) .EQR illustrates the time required for reorder when organization arrives to this economic order quanity. It means to lower the risk of not getting the stock on time before running out of the inventory. The following

:

Therefore, this quantity means that the company should restock their quantity once there are only have 677 units left.

Costs are usually computed according to this following formula

* Annual ordering cost= Annual Unit Demand \* Fixed unit cost + Supplier cost per order

= 15000 \* 80 +220 = 1,200,200

* Annual holding cost= Annual Unit Demand \* Fixed unit cost \* Opportunity cost percentage

= 15000 \* 80 \* 0.18 = 216,000

Therefore, the total cost will be the combination of the annual ordering cost and the holding cost.

* Total cost of inventory = Annual ordering cost + Annual Holding cost



Now, we will try different scenarios of of the order quantity to see its effect on the costs as a whole. The order quantity increases by 25 units every single time we use it. We will use this formula :



As we see that the cost reduce between 550 units ($9,960) and 675 units ($9,748) but then rise again as we go forward. Thus it is proven that the costs is lowest with the order quantity at 677

**Application.**

In this week, I used the “Decision Models for the Movie Industry” from the “Handbook of Marketing Decision Models” to discuss the application of a Decision Model in an industry. The movie industry has been a challenging pathway for any scholarly research and modelers due to many factors: wide distributions outlets, a short window of opportunities, abundance of involved parties. Industry pundits argued that the artistic nature of the movie industry distinguishes itself from other industries that it is impossible to deploy any models in an effort to improve the operational and commercial performance of a movie. Nevertheless, stubborn academics still fought relentlessly and established some trailblazing works: Forecasting Theatrical Performance Models, Home Video Market models, etc. We will focus on the Scheduling Movies in Theatrical Facilities Model. An exhibitor has to decide which movies to play and to discontinue so as to the profit amidst many problems: short life cycles of movies, changing demands, screens shortages and revenue-sharing system. Most choose the SilverScreener decision model, developed by Swami and his team, to tackle this problem. There are two constraints that must be satisfied before deploying this mathematical model: A consecutive-weeks-showing-movie and the total number of movies scheduled in a week has be equal to the total number of the screen at that cinema. They used the public dataset for a specific theater in New York City. The model helped the exhibitor to achieve substantially higher cumulative profit thanks to the combination of “better selection” and “improved scheduling”. It is also a normative decision. After passing rigorous testing methods, the model was incorporated into the decision support system of Pathe´, the world's largest film equipment and production company in Paris. (Eliashberg & Weinberg, 2017, p. 452) Nevertheless, the researchers pointed out that there are lessons that one needs to pay attention to about the implementation process:

* Executives are often hesitant to give predictions when asked for input for the SilverScreener model
* Decision Support system must always consider the degree of centralization of the distributor
* Consider all the positively available data when building a model
* Decision Support System is to help not automate decision-making
* Involving the mangers during the model building process
* Always evaluate the model’s performance after implementation

**References**

Eliashberg, J., & Weinberg, C. B. (2017). Decision Models for the Movie Industry. In *Handbook of Marketing Decision Models,* (2nd ed. 2017 ed., pp. 437–468). New York, United States: Springer Publishing. <https://doi.org/10.1007/978-0-387-78213-3_13>

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