

# [The position, as well as fully understanding](https://assignbuster.com/the-position-as-well-as-fully-understanding/)

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The term “ GameTheory” can be described as a mathematical analysis  in which has the intent of indicating optimalchoices that will lead to a desired outcome. The idea of game theory was firstexplored by  John von Neumann and OskarMorgenstern in 1944. Game theory has been used as a management tool for more than50 years. It helps to create a  structureof analysis for making or arriving at logical decisions in competitiveenvironments. Businesses face optimal decisions on an everyday basis thatrequire some use of game theory. Game theory was originally zero sum games, inwhich one person’s gain resulted in a lost for all other participants. It isnow more commonly used today for behavioral relations in assuming the next moveof a competitor. Understanding competitors and their position, as well as fullyunderstanding your own position and dealing with it accordingly, in any givensituation is ultimately the way of mastering game theory.

Being able toanticipate the next move of rivals, customers, and investors is essential when tryingto obtain a competitive advantage. The game theory has several applicationsincluding: biology, psychology, politics, and economics, among others.            In game theory each player  in the” game” aims to apply a  strategy that will maximum their own gaintherefore seeking an optimal strategy. Those  involved in the game are considered players. Each player will face a choice amongst two or more possible strategies. Optimalchoices are usually used in single-agent decision theories, with multiple agentsthe best strategy will be contingent on the choices of others. Often time treesand matrixes are used for visual representation of optimal choices in a givensituation.

It is assumed in game theory  that players are rational and strive tomaximize their own playoffs. Some solution concepts consist of dominantstrategy equilibrium, presto optimality, and Nash equilibrium.  Equilibrium is achieved when both players inthe game have made their decisions and an outcome is reached.             Oneof the applications in game theory that directly relates to OperationsManagement is the context of determining a location for a business. This isdone through the creation of an effective business strategy. Game theory forms a powerful tool for strategizinghow a business will compete in a given environment and position itself amongits competitors.

The game theory may present a business owner with a detailedstrategic analysis that is essential in determining the best location for thebusiness. An analysis such as this provides accurate predictions of theoutcomes of a company in a given area by projecting how the action of thebusiness would affect the performance of competing firms. The game theory  considers  the potential effects of the rivals whenchoosing the location for a business. A business owner must take all this intoaccount before determining a location for the business.  Firms first try to attract a location with potential in market share, andquality that will be able to attract customers.(Hendrix, 2015)  For example, there is a new electronicsstore  debating  whether they should open a new store in downtownNevada. They are well aware of another electronics store that opened not toolong ago, and know that if they open there that will be a little bit of competition. They are seriously considering this option because of the heavy traffic in LasVegas.

The other option is to open the location in a city in  Texas. Where the competition isn’t bad , butthere’s a big demand for an electronics store in this area. The firm owner hasto now analyze the move of their competitors in order to determine a locationfor this electronics store.             The next application applies to economics which  is determining price.  In this context there are similarities to thePrisoners Dilemma. The prisoners dilemma is a paradox used in decisionanalysis. It shows why two individuals/corporations might not cooperate even ifit would beneficial for them to do so.

It’s used as a prison example, to say if two parties were in separate interrogation rooms , both of theindividual in the party want to minimize their own jail sentences. Weighing outwhich decision is more beneficial for the deciding party is a PrisonersDilemma. (Deng , 2010)  In this situationoperations managers face a similar strategy which is  price-setting to the Prisoner’s Dilemma. In asituation where oligopoly exists, businesses can set prices if they decide to cooperatewith one another; thus, they can sell at higher pricesand receive higher profits. However, if one of the competing businesses decidesto lower their prices, they will achieve higher sales and earn larger profitsthan its rivals. If all competing businesses decide to lower their prices, thenthere will be a conflict in the market, and none of them will benefit due tothe reduced revenue.             The last applicationis inventory in game theory.

Inventoryis used as a type of protection against risk of stock being out when there is uncertaintypresent. Grocery stores, for example have quick turnover with their inventoryin the meat department. The characteristics of perishableproducts are those in which have a limited shelf life in which the overproductionand storage of such products is not recommended.  In order for the business owner to know whento re order inventory for such products they usually focus on rational systemplanning, improved communication among the supply chain players, well-coordinated and fast distribution channels and the clarification oforganizational goals. (Kumar , Mustafee , Katsaliaki, 2014). A store owner has to be able topredict the demand of meat for the week or whenever there re-order point is,  based on previous sells and local competitors.

The firms relationship with their suppliers are vital for the business tosurvive. A firm must order the right amount of inventory for the productsbecause failure to do so can  lead to themeat expiring because it’s been on the shelf too long; or continuously runningout of meat before the re order point and having to spend an additional  fixed cost of redelivery for the week. Thereare many other factors to consider when ordering inventory for perishableitems, but this is where firm owners need to start.                                                                                                                                                                                                                                                                               ReferencesHendrix, E. M. (2015). On competition in a Stackelberg location-design model withdeterministic supplier choice.

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