# M3L4. Game Theory

***Slide #1***


In this topic, we will describe game theory and how to avoid excessive competition.

***Slide #2***

One way to avoid falling into the competitive escalation of commitment is to be rational and cooperative in a competitive environment.

Markets are both competitive and cooperative. Companies earn higher payoffs when they select the constructive course of action in a competitive environment.

Game theory is an advanced strategic model for cooperative companies to compete in a constructive manner to create value for a whole industry for all the players that participate in the competition.

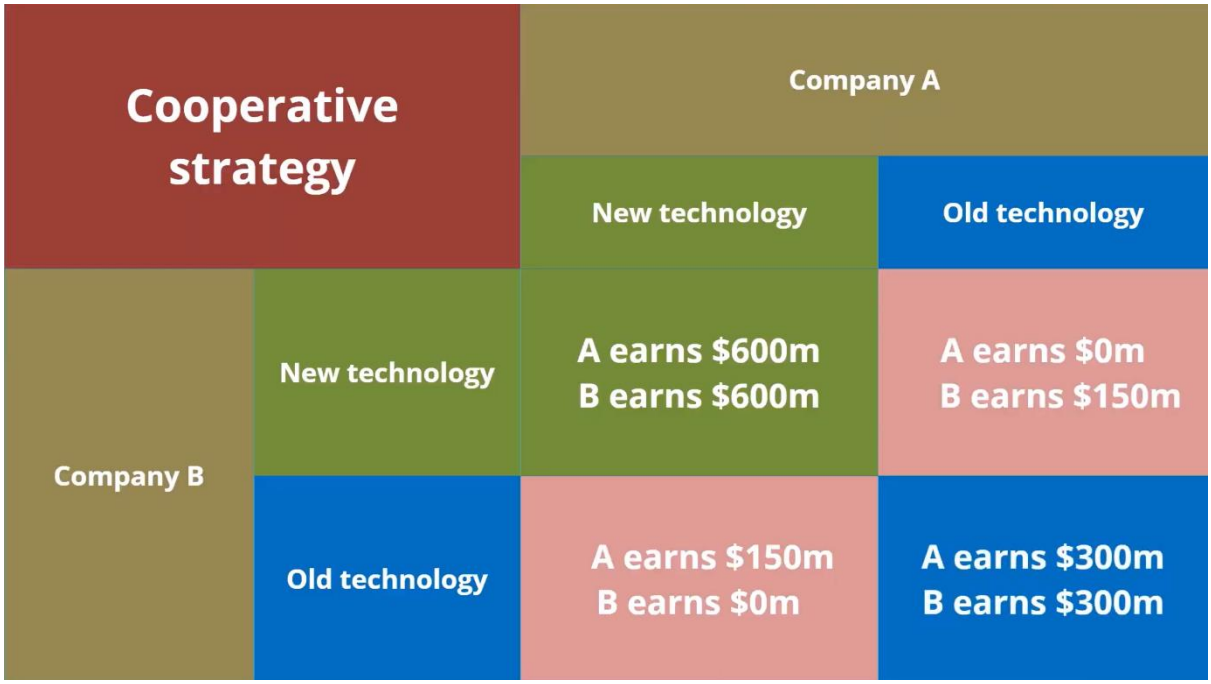
Game theory is widely accepted by the strategists in the industry.

***Slide #3***


Here is an example.

Consider two technology giants who are deciding between introducing a radical new alloy material for oil wells that could earn them hundreds of millions of dollars in profit or introducing an improved version of an older technology that would earn them much less.

***Slide #4***




If both companies decide to introduce the new technology, the market will accept the technology better.

And they would each earn 600 million dollars. But if only one company wants to introduce the new technology to the market, the market adoption will be worse.

And also the company needs to absorb all development costs of the new technology.

So the company who introduced the technology would only earn 150 million dollars.

The other company who does not want to introduce the technology, would lose market share and earn nothing.

Another scenario is both companies decide not to introduce new technologies.

They will continue splitting the existing market and each earn 300 million dollars from the existing market.

***Slide #5***


Another application of game theory in the oil industry is the technology and engineering consortium that major oil firms sponsor.

The consortium develops new technologies, share risk, and grow new market out of the new technologies.

At the same time, each company develops its own version of product of the technology and gain competitive advantage over each other to split the market that they created together.