

Junior Achievement of South Central PA
presents the

JA Titan Challenge

A Business Strategy Competition

The JA Titan Challenge is a terrific learning experience that is competitive and exciting. The competition challenges participants to apply their management skills and knowledge of economics. The computer simulation, JA Titan allows “companies” of students to compete against one another as they manufacture and market the *Holo-Generator*.

A *Holo-Generator* is a fictional product that uses advanced technology to display 3-D, holographic music videos in the palm of your hand. Students are challenged to outperform the competition in terms of:

Profit

Sales

Market share

The Product

The product produced and sold is a *Holo-Generator*. This is a revolutionary product that displays 3-D, holographic music videos in the palm of your hand. Roughly the size of a PDA (personal data assistant), the *Holo-Generator* uses state-of-the-art surround sound to give the videos a life-like look and sound.

Current Market Conditions

- * The market is excited about this product.
- * Many companies are eager to fill the demand for the product.
- * No one company has a patent on the product.



Decisions

There will be two Rounds of competition during the JA Titan Challenge, four periods in each. Each period, teams will have the ability to change: Product Price, Production Level, Marketing, Capital Equipment, and Research & Development expenditures.

Decision sheets will be provided and collected for each period. Decisions must be phrased in whole dollar figures. The simulation does not work with cents.

Primary Concepts – Goal

The team with the highest Performance Index (PI) at the end of Round 2 is the winning team. This index starts at 100 for all companies. The PI will change based upon decisions made for each company in relation to decisions made by other companies in the industry. The simulation rewards companies that reach a balance of supply and demand at an efficient cost of production. All companies in an industry begin with equal levels of cash, inventory and manufacturing capacity.

- PI based on retained earnings (50%), demand potential (10%), supply potential (10%), productivity (10%), market share (10%), and growth (10%).

JA Business Challenge Strategy Guide

Here in the JA Business Strategy Guide you'll find a host of methods to strategize and fine-tune your decisions so that your company's performance is consistent and strong. This guide contains both a strategy basics section and sections covering the individual decisions for Pricing, Production, Marketing, R&D and Capital Investment numbers. Careful implementation of these blended strategies through each quarter will ensure game success.

Fun With Free-Market Fundamentals

Let's look at one angle of the relationship between consumers, businesses, and the products that bring the two together. Discount stores are often successful because they have moderate-quality products selling at low prices. Their strategy is to sell a high volume of products. Specialty or high-end stores typically offer high-quality merchandise at high prices. They can sell fewer products but remain profitable. Whether selling diamond-studded dog collars or recycled-cardboard dog collars, both types of stores can be successful in the same market

Playing the Numbers Game

You should determine your Titan price/volume strategy before you begin the game. Decide whether you want to sell fewer Holo-Generators at a high price, a moderate number of Holo-Generators at a middle price, or a high volume of Holo-Generators at a low price. Reflect on your choices: Every number you put into the game will have consequences for profits and available cash.

The five decisions you make each quarter are interdependent. For example, if you choose a high price, you may want to be careful how high you set your production level. Higher prices result in less demand for your product—a caution against making drastic changes without seeing which way the winds of demand blow. You'll see that price has a substantial influence on demand, but you can also hedge your bets by investing heavily in marketing and R&D, which can give you an extra edge. Market timing and your own resources will naturally influence those decisions.

It's Money That Matters

If you lower your price too much, you may not have enough revenue to cover your costs. Charging ten cents for a glass of lemonade that takes twelve cents' worth of lemons is a sour deal. Pay careful attention to your gross margin and overall profits. Each quarter's profits or losses are compiled to calculate the retained earnings. You'll be able to see these figures in the Company Report: the numbers don't lie, even if you'd like to lie about them.

Companies typically borrow to expand. If you choose to expand your capacity, watch your line of credit. Don't expand too rapidly or you may exhaust your ability to borrow and you'll incur the burden of high interest costs. You don't have to buy a Corvette when you could get across town with a compact. Conversely, high risks can lead to high rewards, but it's usually the disciplined hitters that make contact with the ball, not those that swing wildly at every pitch.

Remember that you can make a better Holo-Generator by investing in R&D. Sometimes the “latest and greatest” can sway a market. You could gain a competitive edge if you are a high-price Holo-Generator provider and want to create increased demand for your product by outfitting it with cutting-edge components. Demand for your product might be knocked down a notch by a price increase, but you can recoup it by increased spending on R&D. However, if other companies have bigger Marketing/R&D budgets, and are selling their Holo-Generators for much less, you might lose market share.

Of course, with increased demand, you have to be ready to change other allocations—such as production—as well.

Reporting for Duty

Look to the Industry Report to provide you with three essential pieces of information: your competitors' product prices, changes in the economic environment, and Performance Indexes.

The Company Report is especially helpful for tracking inventory. If you increase production, but don't sell your Holo-Generators, your inventory level will increase and you will incur an inventory charge—a blight on the bottom line. Your solution might be to lower prices and/or increase marketing to increase sales. Tinker with these factors to see how the market reacts.

Inventory Inventiveness

If your inventory levels are too high, don't halt production unless you want to incur a layoff charge! After all, if you aren't producing Holo-Generators, you have to lay off workers. You have to be careful of drastic moves, which could have drastic effects. A solution might be to gradually reduce production and decrease price and see what effect these decisions have on your bloated inventory. In simple terms:

- too much inventory is bad
- producing more than you sell creates inventory
- reducing production causes a layoff charge
- reducing prices will help you
- sell more products than you produce to reduce inventory

Sometimes your moves might seem like a roll of the dice, but in Titan, clever allocation strategies let you roll those dice in your favor.

Check Your Competition

Once you get into the groove of the game, use the graphing feature to track trends. It gives you an at-a-glance comparison of your key statistics with those of your competitors. If you're trouncing them, don't rest on your laurels—one bad quarter could be your undoing. If you're slacking in the race, tighten up your thinking—see what they've done to do you in, and do it to them.

Decisions, Decisions

A couple of technical considerations:

- Double-check your figures on the decision form before you click “Submit Plan.” A mistake here may cost you the game.
- In a timed game you can go back and resubmit decisions as many times as you'd like before the quarter closes.

Beyond the Basics

OK, you've gleaned all the goodies from the basics table. Those are just appetizers—go on to the main courses of Pricing, Production, R&D, Marketing and Capital Investment.

The Price Is Right—or Is It?

All of your company policies and procedures aren't going to mean doodley if your Holo-Generators don't sell, and they won't if you don't determine their proper pricing. The two reports are key: The Company Report is essential to making proper pricing and production decisions; the Industry Report gives you feedback on how your competitors' decisions affected your results. It also provides some clues on how the economy may perform in the next few quarters

Generally, you want to set a unit price that ensures the sales of most, if not all the Holo-Generators your plant produces. There could be some strategic gain in building an inventory of unsold product that can be sold in future quarters, and that's addressed in the “Dynamic Dance” section below.

Consider raising the price as orders increase, so that the rising demand can result in bigger profits. However, you don't want to slam a growing market with price-gouging, so subtlety in raising your price is in order. Bad market reaction to higher prices could be a painful lesson.

Shaving Prices, Saving Customers

If you are consistently carrying too much inventory, lowering prices is one method to clear it out. It's a given that lower prices increase quantity demanded, but intrinsic to that is that the lower price also results in less profit. Pity, eh?

You'll want to frequently visit the Company Report to see how your price setting relates to orders you receive. The Industry Report displays your competitors' prices—you might need to adjust yours if you see that a competitor is trying to grab a market edge by some high- or low-pricing gambit.

Take what you learn from initial quarters to set pricing for quarters to come. You'll develop a keener sense of market flux, and maybe even pad your company's pocketbook.

Produce, but Stay Loose

Holo-Generator production, like all the factors that affect Titan performance, should be responsive to market factors and past results. You want your factories producing at the maximum efficiency—

selling what you make—and you want to balance production costs, so that spending is in line with selling. As with other allocations, the Company and Industry reports can sharpen the production picture.

The Dynamic Dance of Make, Sell, Make, Sell

Ideally, you want to sell all of your Holo-Generators at the highest price the market will bear. (Keep in mind, there are occasional market tides that won't float the profit boat no matter your pricing.) There is a penalty for producing more than you can sell—an excess inventory fee that subtracts from your retained earnings. Except in special cases, you want to minimize inventory. An exception might be when you want products to sell in a future quarter without increasing factory capacity.

In the Company Report you can view factory capacity, which is the maximum number of generators that can be produced in the next quarter. Adding that capacity to inventory tells you what's available to sell.

That ever-useful Company Report also notes the factory costs in producing each Holo-Generator. Smart cookies like you probably don't need to be reminded that the lower that cost, the better.

The Beauties of Efficiency

Eighty percent is the magic number: Operate at that efficiency and you are producing generators at the lowest cost. Exceed that figure and there won't be time for maintenance and repairs, which raises costs per unit and—naturally—lowers profits. Even machines have to breathe now and then. Produce below the 80% optimal figure and you have equipment and employees sitting idle. That decreases your efficiency and increases the unit cost of production

Today's Almost-Painless Math Lesson

To find your lowest-cost production level, multiply your Holo-Generator factory's capacity by .80. That's your production target. To paraphrase, be frugal and multiply.

Marketing: the Golden Wrapper of Winning Words

Though some cynics might characterize it as putting an evening gown on a noontime pig, marketing does create demand for a product. Money allocated to marketing can work a bit differently than in other areas because other companies can gain from your marketing and you can benefit from theirs.

That's because regardless of who pays for the advertising, more consumers and businesses will learn about Holo-Generators. If you put more dollars behind your marketing pitches, more consumers should get the word on the special, can't-live-without features of the Holo-Generator that you produce.

First (and Somewhat Obvious) Rules of Marketing

If you spend less on marketing than you did in a prior quarter, your company can pocket the difference. But spending less might result in selling less. Thus, a successful marketing strategy results in profits greater than your marketing investment.

R&D: Little Initials, Big Potentials

Investment in Research and Development is a forward-thinking proposition: The future growth of your company is connected to spending on R&D. By investing in R&D, your next generation of Holo-Generators will have new features and advancements, and have greater market appeal. You can chart the impact of your R&D investment in the Company Report.

To This Quarter—and Beyond!

Don't be too results-antsy about R&D—market research and product development are long-term processes, and their effects are distributed over several quarters. Money invested in these two areas will increase sales in future quarters, though not independent of your pricing strategy. For example, R&D increases might raise demand +10%, but high prices might pull demand down -25%, with a net effect of -15% demand. Here are key points:

- R&D spending in Q3 will have an impact on demand in Q4.
- The impact of R&D spending persists over time, so you will still receive some R&D spending effect several quarters down the line.
- R&D spending has a positive effect on demand, though price is a stronger factor in gaining market share.
- R&D spending raises demand industry-wide, just like marketing spending. The percentage of that extra demand you get is directly proportional to what percentage of the industry R&D spending you're responsible for. Outspending all the other companies on R&D can boost interest in your company's Holo-Generators.

Reduced spending on R&D can reduce your expenses, but as seen above, increased spending can increase demand, and boost those ever-pleasurable profits. So, beware the bane of short-term benefits: if your company does not invest in R&D, your product will not improve. Once your R&D-heavy competitors produce some snappy new Holo-Generator that's high on the bells-and-whistles scale, you might never catch up.

Capitalizing on Your Capital

Capital Investment is the money you use to expand your production capability. These expenditures:

- add to the total amount of equipment you own
- replace and repair existing machinery,
- purchase more efficient equipment, and
- expand the physical size of the factory

It's the old—but compulsory—price of doing business. But you're getting what you pay for: Every Capital Investment dollar above your Depreciation figure increases your production capacity (the number of Holo-Generators you can produce in a quarter).

Since it takes time to purchase, install and test new equipment, the effect of any capital investment decision you make will be delayed one quarter. Look at it like this: popcorn tastes better when it's

popped—but before you drown in misguided metaphors, just know here that your investments should be worth the wait.

An Appreciation of Depreciation

If you want to maintain your factory's current Holo-Generator capacity, you need to spend at least the amount listed for Depreciation. (Depreciation represents the value of equipment lost each quarter due to wear and tear.) Any amount you spend above your Depreciation will increase your factory capacity. Conversely, any amount you spend below Depreciation will decrease capacity, and you'll incur layoff charges.

To boldly go where bullet points rarely venture:

- If Capital Investment matches Depreciation, your factory stays as is.
- If Capital Investment is more than Depreciation, you increase production capacity (your factory grows).
- If Capital Investment is less than Depreciation, your factory shrinks, which decreases your production capacity and causes layoffs.

Big Factories, Smaller Prices

Larger factories produce Holo-Generators at a lower cost per unit—a result of the old “economies of scale” concept. It costs \$40 in Capital Investment to increase your factory's capacity to produce just one more Holo-Generator. Following that ratio, it costs \$400 to produce 10 more Holo-Generators

Can the Theories and Cut to the Chase

There—you are armed with the armchair knowledge that can make or break a company owner's career. Leave that chair and get out on the factory floor; touch your Holo-Generators; talk with your marketers, your researchers, and your money managers. Then go test your wits in the marketplace. It can be a cruel world, but the rewards make it all worthwhile. Prosper!