GLOBALDNA®

MANAGER'S GUIDE

CAPSIM

HOW TO USE THIS GUIDE

This booklet has been designed as both a quick start guide and a reference manual. As we introduce you to each element in the simulation, we'll provide a short introduction to the interface, followed by a deeper explanation of the tools you'll use to run your company.

This guide does not have to be read like a novel. It is important to start with the Introduction to get an overview of the simulation, but after that feel free to jump in and out of the material to find the information you need, as you need it.

TABLE OF CONTENTS

ORIENTATION

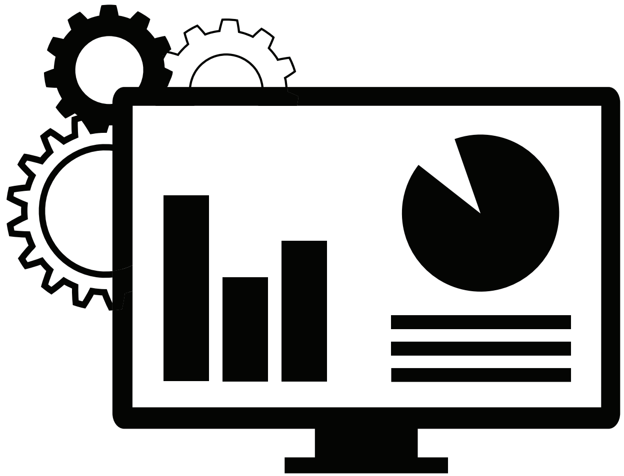
WHAT IS A BUSINESS SIMULATION?

A business simulation creates an environment in which you can apply business concepts, strategy, and tactics, as you make a series of decisions that will directly impact the financial well being of your simulated company. It is your chance to run a whole company and build your business acumen.

Capsim's GlobalDNA is a multifaceted simulation that will challenge you to think outside the 'silos' of individual disciplines such as marketing, accounting, operations and so on, and appreciate how each element of the company's operations interacts with one another.

The success of your company is dependent on your ability to think strategically, learn from mistakes and missteps (and if you don't make any, you're not trying hard enough!), and enjoy the learning experience knowing that nobody's retirement portfolio will be destroyed if your company fails!

The simulation offers two different modes: Practice Rounds and Competition Rounds. Practice Rounds allow you to become acquainted with the simulation interface, saving and reports, and organize workflow with your teammates. Once the Practice Rounds are completed, the simulation is reset, and the real competition begins. Companies compete for up to eight rounds, with each round simulating one year in the life of your company.



COMPANY BACKGROUND

Your organization designs, develops, and sells genetic testing devices to the medical industry. The company was originally part of a much larger organization (MediCorp, Inc.) with a virtual monopoly in the market. However, the 97% market share MediCorp enjoyed eventually drew the attention of the Monopolies Commission.

The American Times summed up the Commission's findings and actions:

"Increasing pressure from hospitals, clinics and non-profit organizations slowly began to turn the focus of the Monopolies Commission towards MediCorp, Inc. Although there was no suggestion of foul play, the American Medical Board was concerned that genetic research was being inadvertently stifled. The Commission moved quickly to split the conglomerate into six equal entities, who have gone on to hire from a pool of talented young executives and form a new Board of Directors for each company."

New Markets

MediCorp had adhered to a strict 'no export' strategy based on the fragility of genetic testing devices and the cost of replacing inaccurate or broken units. However, today's more robust technology means this is no longer the case, and industry reports suggest that demand is growing overseas. These markets have been touted, by some commentators, as the future of the genetic testing market.

The American Times

FRIDAY, DECEMBER 9, 2013 | 1(800)-TRIBUNE | www.tribune.com

MediCorp Inc. Splits into 6

"Increasing pressure from hospitals, clinics and non-profit organizations slowly began to turn the focus of the Monopolies Commission towards MediCorp, Inc. Although there was no suggestion of foul play, the American Medical Board was concerned that genetic research findings were being inadvertently stifled. The Commission moved quickly to split the conglomerate into six equal entities, who have gone on to hire from a pool of talented young executives and form a new Board of Directors for each company."

"The Commission moved quickly

WHAT IS A GENETIC DIAGNOSTIC TEST?

Portable genetic diagnostic tests (genetic tests) are used to quickly test for a range of medical conditions. Diagnostic testing devices have a long history, going back to the first medical thermometers. They evolved to include devices that mechanically checked for vital statistics, like blood pressure, or biochemical tests of blood type or sugars. As time passed the “lab on a chip” concept combined several diagnostic devices into one.

Your industry is on the cutting edge. You specialize in portable genetic diagnostic tests. Your devices can determine whether a particular gene, or combination of genes, is present in the patient, and can even tell a physician whether the gene is switched on or off. They are useful in diagnosing diseases like cystic fibrosis, Crohn’s disease, and certain types of cancer, as well as determining risk profiles that help people avoid the development of a disease towards which they might be predisposed.

Your company manufactures these portable health test kits. The devices are largely sold to hospitals, school districts, and private paramedic service companies.

GENETIC DIAGNOSTIC TEST

WHAT ARE YOUR COMPANY OBJECTIVES?

Your company competes directly with the other companies in a zero sum market, which means every sale you make is one your competitors lose. Conversely, every sale your competitors make means one less customer for you.

Your goal in the simulation is to outperform the competition. A successful company will use the tools available to analyze the market and implement a dominant strategy. Additionally, your instructor may set specific success measures such as: Share Price, Return on Sales (ROS), and/or Net Profit.

You will lead one of the following companies. You may compete against up to 5 other companies led by your peers, computers or both.

- ANDREWS
- BALDWIN
- CHESTER
- DIGBY
- ERIE
- FERRIS

BUSINESS ENVIRONMENT

REGIONAL OUTLINES

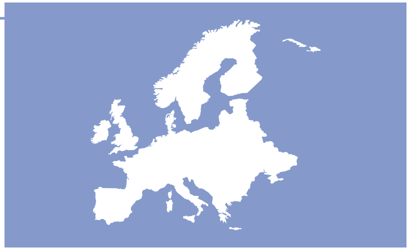
Within the simulation, there are three geographical zones: Americas, Europe, and Asia Pacific. For the period of the simulation, the following assumptions about the cultural and economic landscape in each zone apply:

Americas *Currency - $*

This is where your company is headquartered and managed. In GlobalDNA, this region represents a mature economy with a stable political environment. As the genetic diagnostic testing industry is well established, the Americas are considered a saturated market moving forward.

Europe *Currency - €*

In GlobalDNA, Europe represents a highly developed, technologically advanced and relatively high-income economic region. It is experiencing steady economic growth that your company hopes to capitalize on.



Asia Pacific *Currency - S$*

This region includes emerging economies, constituting relatively low income communities, increasing economic growth, and significant demand for improved health care. The region has a zero-tariff policy that makes it an attractive market moving forward.

MARKET SEGMENTS

WHAT IS A MARKET SEGMENT?

Do you know someone who must have the latest gadget? Maybe someone who always buys a specific brand, regardless of the price? Are you, on the other hand, always looking for a bargain and don't really mind if it doesn't have all the features of a more expensive model?

Whatever your preferences, there are many other buyers who share them. Buyers sharing similar buying preferences are placed into clusters called market segments, which you can see drawn below. Companies will strategically place their products in particular segments so they can better meet their customers' buying criteria.

MARKET SEGMENTS IN GlobalDNA

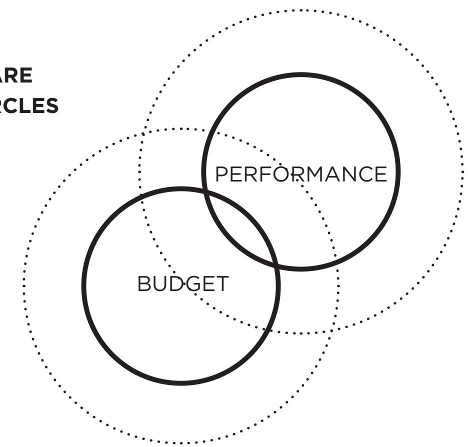
The genetic diagnostic test market has two clear segments: Budget and Performance.

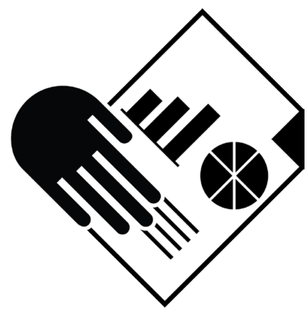
Budget Segment – Buyers are looking for a product that is inexpensive but still fulfills their primary needs.

Performance Segment – Buyers in this segment are looking for the most up-to-date, technologically advanced products and don't mind paying a premium to get what they need.

There are, however, other criteria on which customers also base their purchase decision. To see detailed buying criteria for each segment, you will need to look at the Industry Report, called The Globe, published at the end of each simulation round.

MARKET SEGMENTS ARE REPRESENTED AS CIRCLES





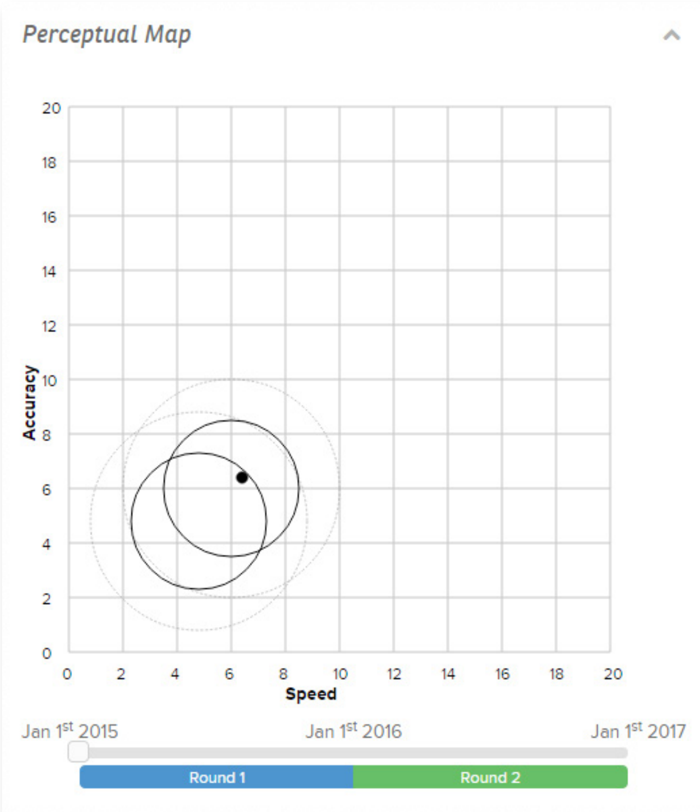
PERCEPTUAL MAP

Product positioning is such an important concept that marketers developed a tool called a Perceptual Map to track the position of their products. To the right, you can see the Perceptual Map used at the start of GlobalDNA.

The GlobalDNA Perceptual Map measures Accuracy on the vertical axis and Speed on the horizontal axis. Each axis extends from 0 to 20 units.

Each market segment—Budget and Performance discussed on the last page—is represented on the map as a circle. The Budget segment in the lower left focuses on price, first and foremost, and thus is satisfied with products that are slower and less accurate.

Comparatively, the Performance segment to the upper right demands faster, more accurate products, and Performance customers are willing to pay a higher price for them.



For a more detailed explanation of perceptual maps, see the R&D section starting on page 21.

GROWTH RATES

The market for genetic diagnostic test equipment is expanding, but in each geographical region there are different growth rates for each market segment. These growth rates are specific to the industry, however, and may not reflect the regional economy as a whole.

Budget:Performance Ratios

For specific growth rates, see the Industry Tables section on page 60.

Americas
Approximately 2:1 Budget:Performance, for the foreseeable future.

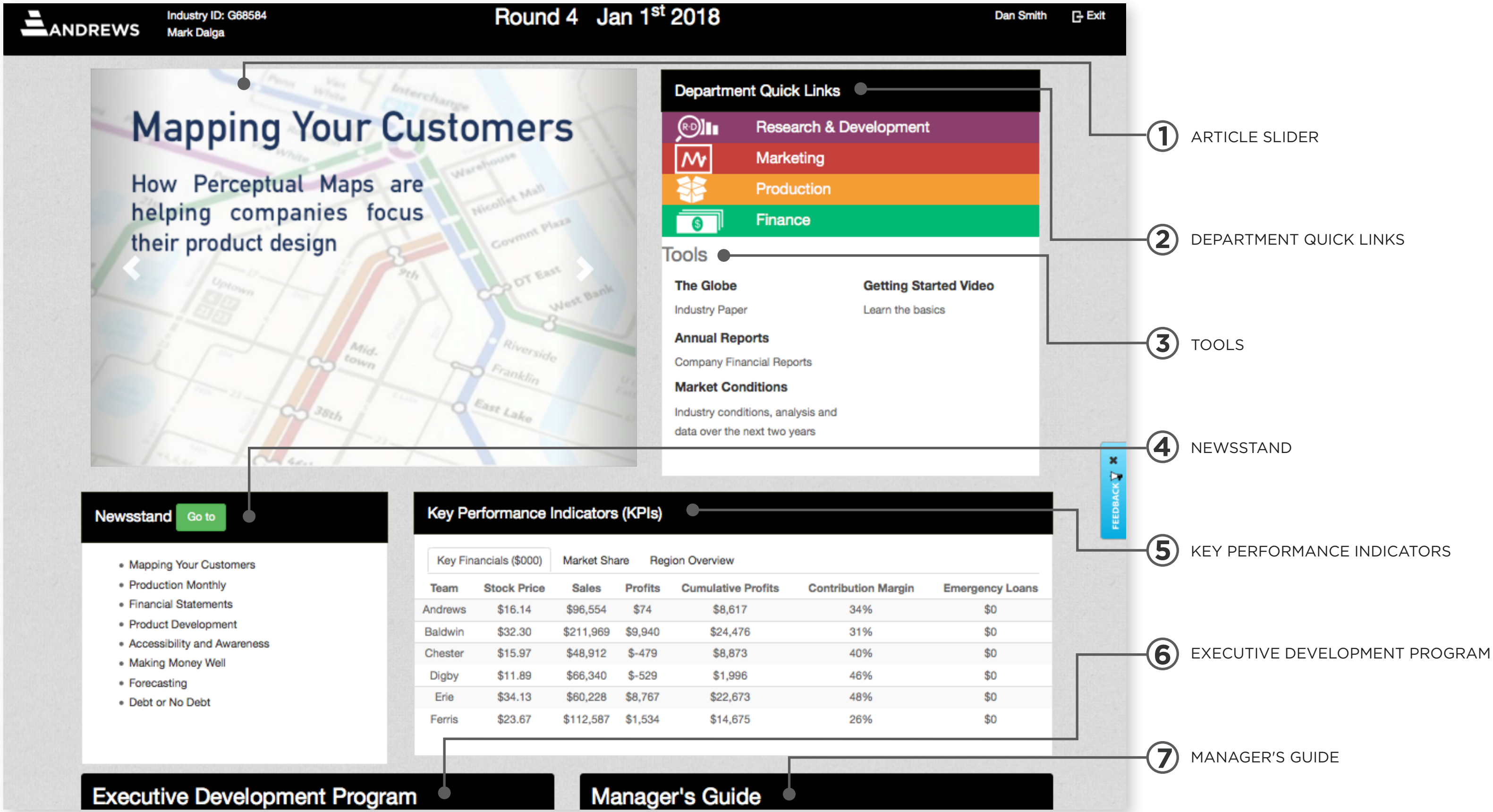
Europe
Approximately 3:1 Budget:Performance but trending toward Performance in the next five to ten years.

Asia Pacific
Approximately 3:1 Budget:Performance with further expansion of the Budget market anticipated.

USER INTERFACE

COMPANY HOMEPAGE

The company homepage is the starting point for your GlobalDNA experience each time you log in.



COMPANY HOMEPAGE

① ARTICLE SLIDER

Front and center, the photo slider of relevant articles offers you additional resources to learn more about business and the simulation. The rotating stories offer insight into the simulation's key points, and will help you apply your business knowledge to GlobalDNA. As you progress through the rounds, these articles will change to reflect your company's development.

② DEPARTMENT QUICK LINKS

To the right of the slider you will see the department quick links, where you enter the simulation and make decisions. Clicking a department will give you the option of using your personal draft or loading the saved file that contains the latest official decisions from your team.

③ TOOLS

Below the department links are vital tools you'll need to make informed decisions. The financial paper 'The Globe' provides a detailed look inside the entire industry. Your company's Annual Reports give you a look into the key financial reports from the previous year. Finally, the Market Conditions Report outlines the shape of the industry for the years to come.

④ NEWSSTAND

Below the news article slider is the Newsstand, where you can access and search for articles to help with your decisions.

⑤ KEY PERFORMANCE INDICATORS

Next to the Newsstand is the Key Performance Indicators (KPIs) summary. Think of this as a quick snapshot into the performance of each company in the industry.

⑥ EXECUTIVE DEVELOPMENT PROGRAM

On the bottom left of the Company Homepage is the link to the Executive Development Program - your onboarding center.

⑦ MANAGER'S GUIDE

This manual! You'll be able to access this document via the bottom right of the Company Homepage at any time.

EXECUTIVE DEVELOPMENT PROGRAM

The Executive Development Program (EDP) is a rotational training program designed to help prepare you for the GlobalDNA simulation experience. The EDP takes you through each of the four functional departments (R&D, Marketing, Production, Finance) and gives you a series of tasks to complete in an interactive environment replicated in the simulation.

The workflow of the EDP is based around saving a fictional company, Decadon Electronics. Various errors in each department are highlighted, and you are given the chance to solve the issues while navigating the department interfaces. Support is offered in the form of help videos, task hints and walk-through tips.

Each rotation is divided into the following sections:

1. **Introduction**
   A video overview of the module's goals
2. **Case Study**
   Background on Decadon's departmental issues
3. **What would you do?**
   A summary of the issues and tasks to focus on
4. **Decisions**
   The department interface, identical to the simulation
5. **20/20**
   Review and grading of your decisions
6. **Quiz**
   Five questions to test your knowledge
7. **Wrap up**
   Key takeaways from each department

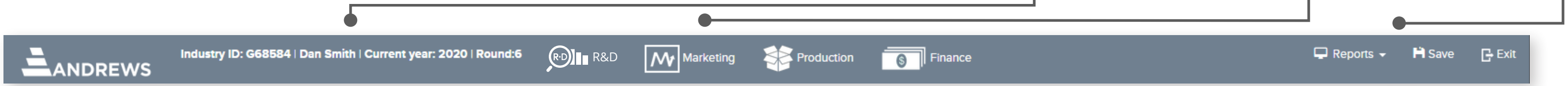
Your progress can be monitored from the EDP dashboard, and at any time you can quickly jump to your last saved section by clicking the link in the relevant module.

Good luck!

NAVIGATION

The GlobalDNA navigation bar includes icons that represent departments, resources and actions on each page of the simulation.

① SIMULATION INFO ② DEPARTMENT LINKS ③ SIMULATION TOOLS



① SIMULATION INFORMATION

Company name

Located in the top left of the interface, your company name serves as a link to the company homepage.

Simulation Info

Key information regarding the simulation, round and industry. This information is useful when contacting your instructor or Capsim for support.

② DEPARTMENT LINKS

The department links are quick links to each department page. All departments are easily accessible from all pages.

③ SIMULATION TOOLS

Reports

Click to see the The Globe financial paper. This will help guide your decision making process for the coming year.

Save

Click to save your decisions. You can choose to save by department or your entire decision file. The last saved decision file will be used when your instructor processes the round.

If you're working with a team, any time a team member saves a file, you have the opportunity to download their decisions. The pullout box on the right side of your screen will alert you if there are updated decisions to download. Please note, loading these decisions will overwrite your current saved file in the selected department(s).

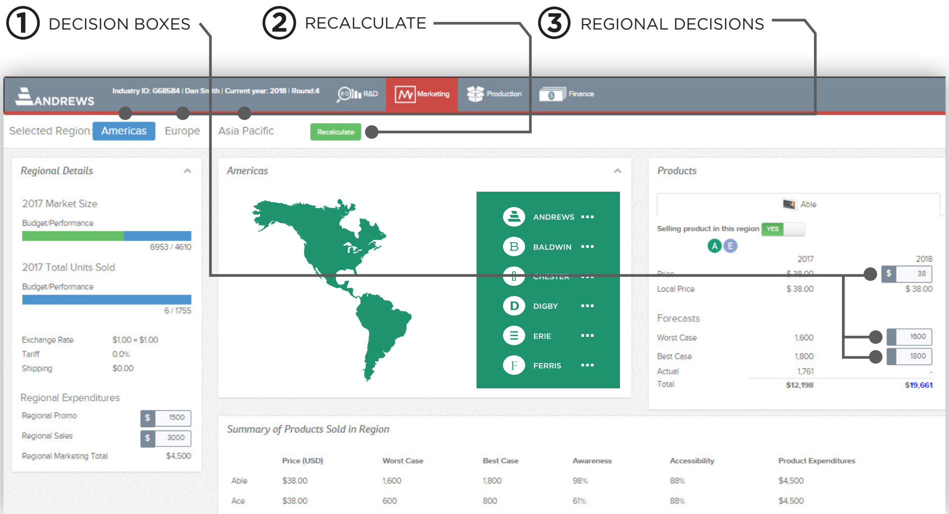
For more information about saving or collaborating as a team, see page 79-80 - or visit capsim.com/v/GDNAsave for a video demonstration.

Exit

Click here to return to your course page or log out of Capsim entirely.

HOW TO ENTER YOUR DECISIONS

Your management decisions are executed by entering them into the relevant cells of each department's web page.



① DECISION BOXES

If the box is outlined in gray, data can be entered. If no data is entered, the previous round's value will remain.

② RECALCULATE

Each department page has a 'Recalculate' button that will update decisions with any changes you have made. Each time you change or update a decision, click 'Recalculate' to see the changes take effect.

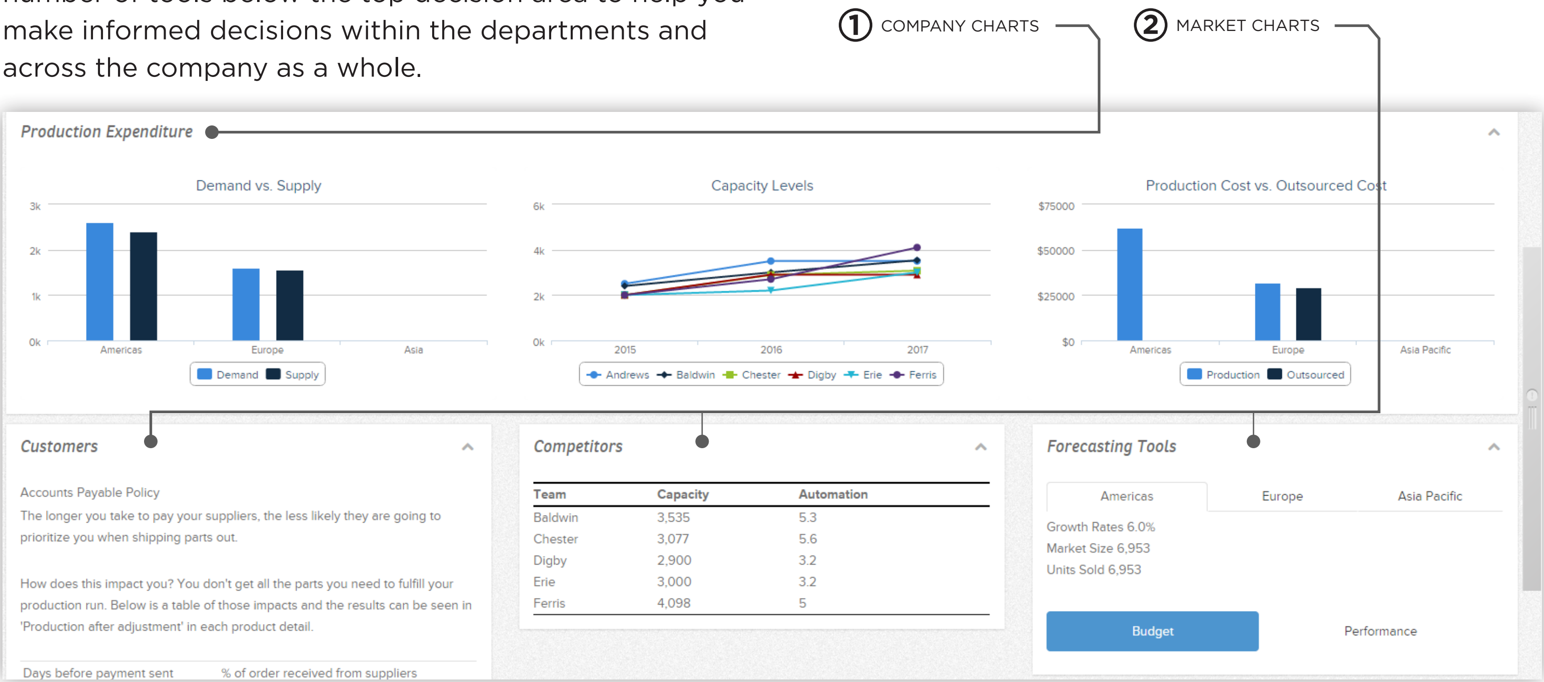
③ REGIONAL DECISIONS

You will need to make decisions for each region, even if that decision is to do nothing. To be successful, each department must consider the international environment when balancing resources between markets.

Clicking on the region names (Americas, Europe, Asia Pacific) will allow you to make decisions for each region.

TOOLS

The R&D, Marketing and Production pages contain a number of tools below the top decision area to help you make informed decisions within the departments and across the company as a whole.



① COMPANY CHARTS

The Company Charts contain information about your company that updates throughout the simulation.

② MARKET CHARTS

The Market Charts contain information regarding the business environment, divided into three separate drop downs – Customers, Competitors and Forecasting Tools.

DEPARTMENTS

This section covers the basics of each of the four department pages – **Research and Development**, **Marketing**, **Production** and **Finance**.

Each department section is structured as follows:

1. An introduction to the department's purpose and functions

2. A visual overview of the interface highlighting the decisions to be made on each page

3. Detailed information on the key components, rules and potential tactics

4. References to additional glossary tables and/or definitions

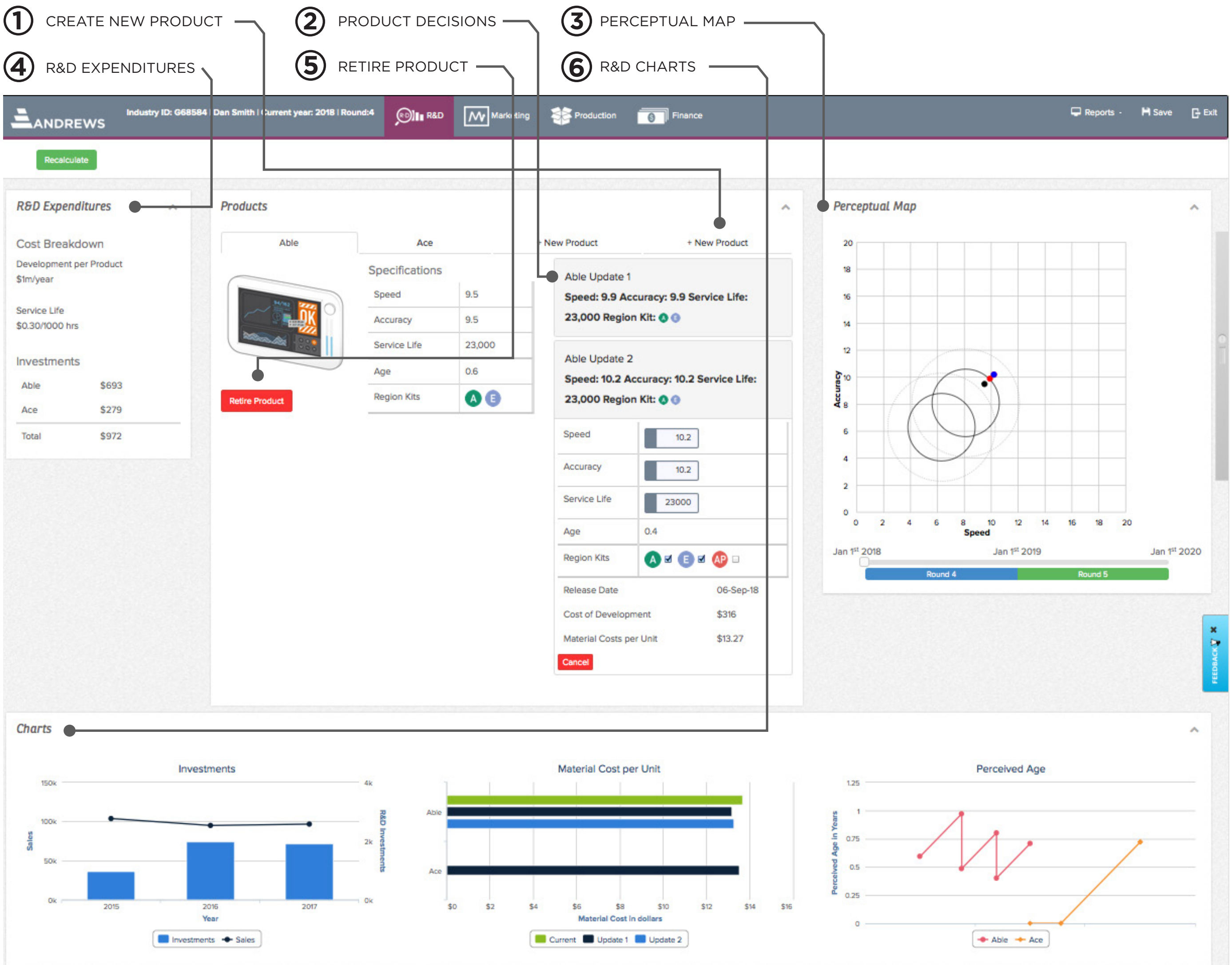
Each department section provides the information you will need to make tactical decisions for the department.

RESEARCH & DEVELOPMENT

The role of R&D is to design and modify the products in your company's portfolio. R&D must work closely with the Marketing department. Marketing provides information on what your customers really want so that R&D can identify the best product specifications to meet those needs, while coordinating project timelines and managing development costs.

The department page is where the following decisions are made:

- Creating new products to meet customer demands
- Managing existing products to keep them relevant in the marketplace
- Retiring products from the market that no longer fit your strategic direction



① CREATE NEW PRODUCT
② PRODUCT DECISIONS
③ PERCEPTUAL MAP
④ R&D EXPENDITURES
⑤ RETIRE PRODUCT
⑥ R&D CHARTS
ANDREWS
Industry ID: G68584 | Dan Smith | Current year: 2018 | Round:4
R&D
Marketing
Production
Finance
Reports
Save
Exit
Recalculate
R&D Expenditures
Cost Breakdown
Development per Product $1m/year
Service Life $0.30/1000 hrs
Investments
Able $693
Ace $279
Total $972
Products
Able
Ace
+ New Product
+ New Product
Specifications
Speed 9.5
Accuracy 9.5
Service Life 23,000
Age 0.6
Region Kits
Retire Product
Able Update 1
Speed: 9.9 Accuracy: 9.9 Service Life: 23,000 Region Kit:
Able Update 2
Speed: 10.2 Accuracy: 10.2 Service Life: 23,000 Region Kit:
Speed 10.2
Accuracy 10.2
Service Life 23000
Age 0.4
Region Kits
Release Date 06-Sep-18
Cost of Development $316
Material Costs per Unit $13.27
Cancel
Perceptual Map
Accuracy
Speed
Jan 1st 2018
Jan 1st 2019
Jan 1st 2020
Round 4
Round 5
FEEDBACK
Charts
Investments
Sales
R&D Investments
Year
Investments
Sales
Material Cost per Unit
Able
Ace
Material Cost in dollars
Current
Update 1
Update 2
Perceived Age
Perceived Age in Years
Able
Ace

R&D DEPARTMENT

① CREATE NEW PRODUCT

Click the '+ New Product' tab to open the new product development decisions. You can select the name, design, specifications and Region Kits to best position your product. A Region Kit is an upgrade that customizes the product to meet local requirements.

② PRODUCT DECISIONS

You can make up to two updates to your existing products. As you make decisions, you will see an updated release date. Upon completion of the project, you will produce and sell all units of the product at the new specifications. Update 2 begins immediately after Update 1 ends. Aligning your decisions with the customer buying criteria while balancing development time and costs is essential to your success in R&D.

③ PERCEPTUAL MAP

The Perceptual Map displays your products' Accuracy and Speed coordinates and where your product falls compared to where customers are located. On the Perceptual Map, there are two circles. Each circle is a market segment, which represents a group of customers with similar preferences for Speed and Accuracy.

④ R&D EXPENDITURES

View how much you are investing in creating new products and modifying existing offerings.

⑤ RETIRE PRODUCT

Sometimes a product becomes obsolete and needs to be retired. Click the 'Retire Product' button to eliminate the product from your portfolio and sell off the remaining units.

⑥ R&D CHARTS

Additional information regarding the company and business environment,including your investments, material costs and perceived age of products in the market.

R&D DECISIONS

PRODUCTS

Under 'Specs' in the Products panel you see the specifications of the current product. Designing a new product or modifying an existing product creates a project. For each project, you need to determine the product's specifications for:

Speed – the time it takes the device to analyze a sample and display results

Accuracy – the likelihood of the testing device to provide a correct result. Devices with a higher Accuracy rating are less likely to give a false positive or false negative result.

Service Life – expressed in hours, as the average time before the device is likely to fail. Increasing Service Life increases material cost per unit. Decreasing Service Life decreases material cost per unit.

See projects on page 27 for more details about changing specifications.

Region Kits – a feature that tailors products to the specific region they will be sold in. Region Kits boost demand in an area by 10% compared to the competition, but add 3 months of development time to add/remove and 15% in material cost per unit.

Age – a new product starts with an age of zero. However, modified products are considered to be new and improved, which cuts the perceived age of the product in half. Only decisions changed for Speed or Accuracy cut the age in half. Changes to Service Life and Region Kits have no impact on the perceived age.

R&D DETAIL

SEGMENT MOVEMENT

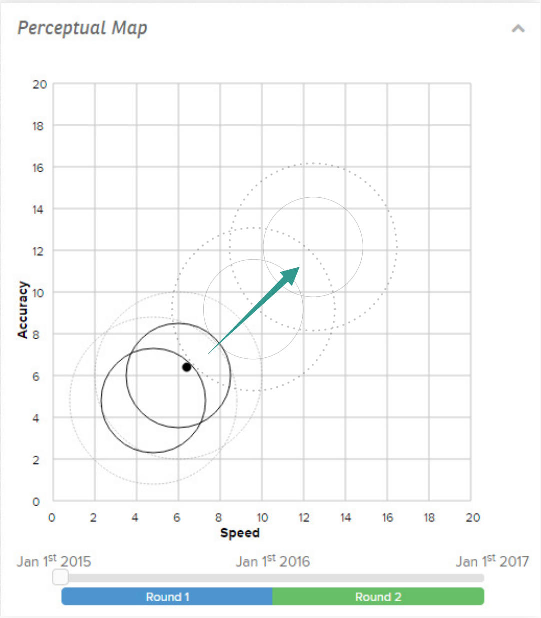
Customers in each market segment – Budget & Performance – continuously expect faster and more accurate products. We map those increasing demands on the Perceptual Map. The circles defining the product segments will move a little each month, drifting towards the top right-hand corner of the map as customers look for faster and more accurate devices.

Each company must innovate and update products to keep up with segment movement and remain competitive.

Within each segment there is an 'ideal spot'. These are the coordinates for the customers' desired Speed and Accuracy of the product at that point in time. The ideal spot drifts an equal distance each month, but is different for each segment. The Budget segment moves slower, and customers do not expect frequent changes to their products. The Performance segment, however, moves at a faster pace, and customers expect frequent changes to their products.

DRIFT RATES

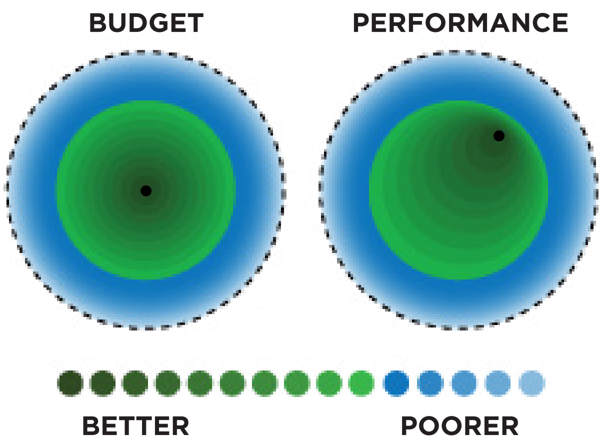
In the simulation, the rate that the segments move is called 'drift rate', and it is different for each market segment. Drift rates reflect what we experience in real life – the next version should be faster and more accurate. See the Industry Statistics section on page 59 for the actual drift rate in each segment.



R&D DETAIL

IDEAL SPOT

As you know, the ideal spot is that point in the segment where, all other things being equal, demand is highest. In the image below, it's represented as the black dot within the circle. The perceptual map helps you to calculate the Ideal Spot for each round of the simulation, using the drift rate information you will find in the Industry Statistics section on pages 59-60.



The circles above reflect positioning within each segment. The darker the color, the better positioned the product is within its circle. The inner fine cut (green) has a radius of 2.5 units on the scale, while the outer rough cut (blue) has a radius of 4.0 units.

SERVICE LIFE COSTS

The Service Life rating for existing products can be adjusted up or down. Each 1,000 hours of Service Life adds $0.30 to the material cost. Customers prefer products towards the top of the range. For more detailed information on Service Life and the Rough and Fine Cuts, please see page 81 in the Glossary.

CUSTOMER BUYING CRITERIA

In the Customers tab, the Buying Criteria for each of the market segments is displayed. The Customer Buying Criteria are the different product features that customers consider when buying a product. Criteria include the product price, positioning (including Speed and Accuracy), its perceived Age and Service Life of the product.

Just as in real life, different segments place different levels of importance on each factor. For example, an American customer seeking a performance product places positioning above all other things, however an American customer seeking a budget product considers the price and age of the product above positioning.

For a detailed look into the Customer Buying Criteria, see the Customer data tabs on the R&D and Marketing pages, or the segment pages in The Globe.

PROJECTS

There are three types of R&D projects:

1. Inventing a new product

Enter the Accuracy, Speed and Service Life figures that are appropriate to the segment you wish to enter.

2. Modify an existing product and reduce the perceived age

You can reduce the perceived age of a product by changing a product's Accuracy or Speed coordinates. Any additional changes to the product's Service Life or Region Kits will factor into the development time.

3. Modify an existing product and don't reduce the perceived age

Not all modifications reduce the perceived age. When only changing the Service Life figure and/or adding or removing Region Kits, the perceived age of your product will not be cut in half.

Your product will continue to sell with the old specifications up until the completion of the repositioning project, at which point it will begin to sell with the new specifications.

Use the Customer Buying Criteria boxes in the Market Segment Analyses in The Globe to help determine the best position and service life level for your products.

When a repositioning project completes, the product's age is cut in half. Thus, R&D drives three of the four buying criteria — positioning, service life, and age — leaving only price, which is determined by Marketing.

Considerations before starting a project:

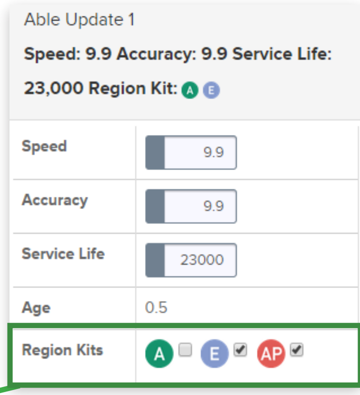
+ Where do I want my product positioned on the Perceptual Map when the project ends?
+ What length of Service Life should my product have? Is it within the required range of the segment?
+ Do I want to add any region kits to tailor my product to a specific area?
+ Do I want to make multiple product updates within this calendar year?

REGION KITS

Region Kits are region-specific product additions that increase a product's attractiveness to customers. Conceptually, our genetic diagnostic test performs several genetic tests at once. For example, given a biopsy, it can test for several varieties of cancer. Since cancer incidence varies by region, the genetic test can vary by region. However, it is possible to tailor your product to test for additional region specific diseases. For example, a cholera test may be considered for Asian customers, but would not be relevant to European customers.

In GlobalDNA, adding a Region Kit boosts demand by 10% over your competitors (i.e. adding an Americas region kit will add 10% demand in the Americas). If your competitors choose to add a Region Kit, as well, then your demand boost will reduce. In the case that all six companies are offering Region Kits to a specific region, there will be no advantage in customer demand for any team.

Adding a Region Kit to a product adds three months to the R&D project timeline, plus a 15% material cost increase in the region where the product is sold. If you are managing the Andrews Company, for example, and you decide to put a European Region Kit on your Able product, you will see a 15% increase in material cost for all products that are shipped to Europe. However, no products in the Americas or sent to Asia will incur any additional material costs. You can have up to three Region Kits on each product.



This product has a Region Kit for Europe and Asia Pacific, but not the Americas.

In the simulation, you don't have to determine how to specifically tailor your product. You are only required to determine if you will offer a region-specific product to certain areas.

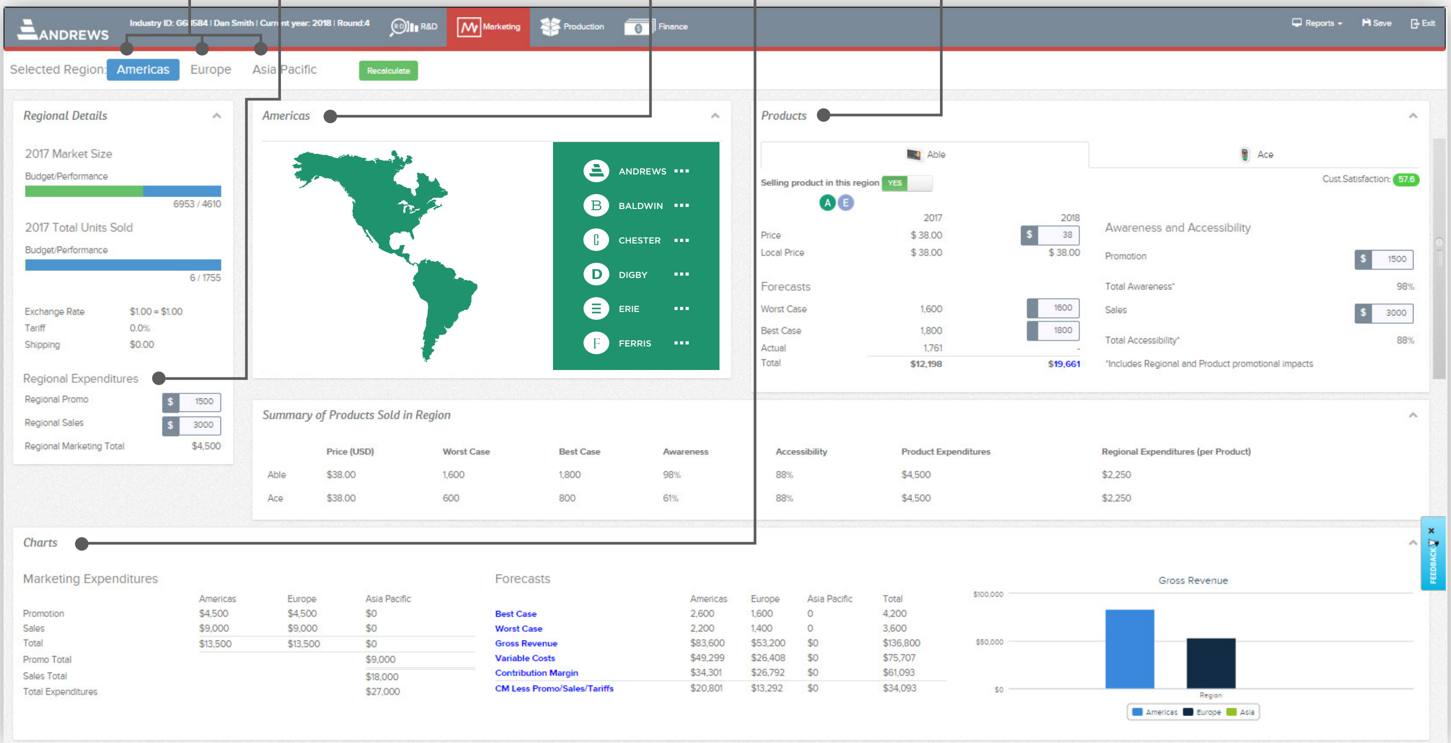
MARKETING

The Marketing department is responsible for forecasting sales, promoting both the products and brand, as well as pricing and selling your products.

We know that customers have preferences for Accuracy, Speed, Age and Service Life specifications, all of which are determined in the R&D department, but marketing has control over the other key factor in the customer buying criteria: pricing.

Marketing is also responsible for forecasting sales of each product for the coming year. This is critical because your Production Department uses these forecasts to determine how much of each product line to manufacture, and your Finance Department uses these forecasts to generate your proforma financial statements.

① REGIONAL OPTIONS
② REGION MAP
③ PRODUCT DECISIONS
④ REGION TABS
⑤ MARKETING CHARTS



MARKETING DEPARTMENT

① REGIONAL OPTIONS

The left side of the Marketing page shows key regional information, including market size, total units, exchange rate and more. The region's marketing and sales decisions are also made here, which boost customer awareness and accessibility across all products in the region.

② REGION MAP

The region map displays summary information regarding the business environment for the selected region. If a company operated in a region in the prior year, then the company logo will be illuminated. Clicking on the logo will provide you with relevant market data.

③ PRODUCT DECISIONS

This is where product level forecasts and marketing investments are made. As new products are invented, you can click the product tabs. Click the product tabs to move to the next product decisions, while viewing a summary of all Marketing decisions in the table below the product area.

④ REGION TABS

The importance that customers place on each aspect of the product is different in each region, reflecting the subtle influence of culture. Decisions are made on a regional basis and clicking on a new region will display the products, competitors and information for that region.

⑤ MARKETING CHARTS

This section contains additional information regarding the company and the business environment.

MARKETING DECISIONS

PRICE

In the Products panel, you set the price per unit in dollars, and it is converted to local currency, where applicable. The price range listed in the customer buying criteria is local currency, so be aware of the impact of currency fluctuations.

AWARENESS & ACCESSIBILITY

An essential part of Marketing is letting the customer know that your product exists and where customers can buy it. Awareness and Accessibility measure these activities:

Awareness is the percentage of the market that is aware of your product.

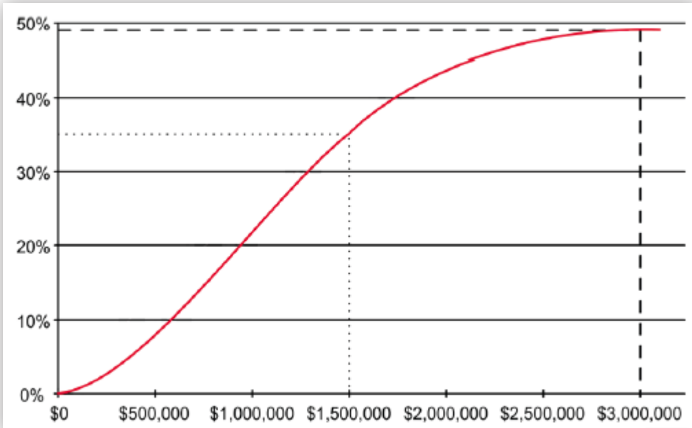
Accessibility is the percentage of the market that has access to your product.

In the Products panel you can make overall investments in **Promotion**, which impacts Awareness, and in **Sales**, which impacts Accessibility. Additionally, region-specific investments can be made in the marketing region panel on the left.

Product Promotion makes up 70% of your total Awareness, while Regional Promotion makes up the remaining 30%. The same ratio applies for Product Sales and Regional Sales on your overall Accessibility. Each year, your Awareness and Accessibility will reduce by 1/3 from the prior year.

PROMO BUDGETS

The Promo Budgets are the amounts you will spend overall to advertise and promote the product (entered in Product panel), and to tailor the message of your brand to the different regions (entered in Region panel). Promotion Budgets impact Awareness by putting your brand in front of customers more often.



Promotion Budget:

Increases in Regional and Product Promotion budgets have diminishing returns. Say for instance that you have a Product Promo budget (70% contribution) of $2,000,000 and a Regional Promo budget (30% contribution) of $300,000. In this case, you've spent $2,300,000, but the actual equivalent is $1,500,000 ([$2,000,000 * .7 = $1,400,000] + [$300,000 * .3 = $100,000]). As the graph shows, spending an equivalent of $1,500,000 returns 36% Awareness, but at an equivalent value of $3,000,000 returns only 50% Awareness. Beyond an equivalent value of $3,000,000 per product, you will see no additional return.

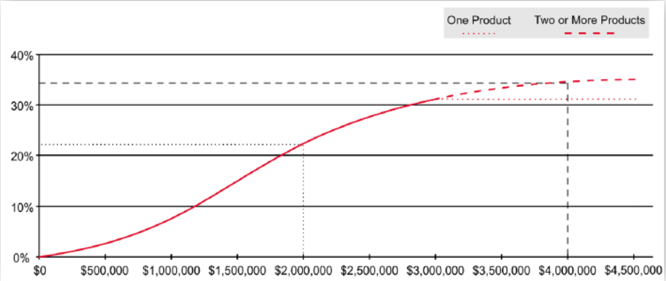
MARKETING DECISIONS

SALES BUDGETS

The Sales Budgets are how much you spend on distribution systems and your sales force by product and by region. Sales Budgets impact Accessibility, which is a measure of how difficult it is for customers to gain access to your product's distribution and support systems. At an Accessibility of 100% customers have easy access. At 1% customers have great difficulty.

In the case of your Sales budgets, products in the same segment will have the same Accessibility. This is because your field specialists selling your products focus on specific segments. For instance, if you have two products selling to the European Budget segment, your contributions to the Sales Budget for each product will sum to the same Accessibility number.

Product Promo and Sales budgets contribute 70% to Awareness and Accessibility, respectively, while Regional Promo and Sales budgets contribute 30%.



Sales Budget:

Regional and Product Sales budgets follow the same rules as the Promo budgets when only one product exists in a regional segment. For companies with only one product in a segment, there is no return on accessibility beyond a $3,000,000 budget equivalent. As the graph shows, companies with multiple products in a segment return 35% accessibility when spending the equivalent to $4,000,000.

MARKETING DETAILS

FORECASTS

The other critical aspect of marketing management is creating a sales forecast to predict how many units you believe you can sell in the coming year. Forecasting is an important, but inexact, science. To help you test various scenarios, you will enter a Worst Case Forecast and a Best Case Forecast for each product.

Your Worst Case (conservative) forecast is used by the Finance department to predict profits, variable costs and contribution margin (a full explanation of these terms is found on Page 35).

It is important to remember that this is just a forecast and your actual number sold will almost certainly be different.

Your Best Case (aggressive) forecast is used by Production to determine how many units to produce. The forecast can be adjusted on either the Marketing or Production page and is used to reduce the chances of stocking out or having excess inventory.

Because your forecasts are used by other departments, they will have profound effects on your company if inaccurate - such as having too much or too little inventory, or not achieving the sales necessary to fund investments.

BUYING CRITERIA AND THE CUSTOMER SATISFACTION SCORE (CSS)

In the top right corner of the Products box you will see the Customer Satisfaction Score.

The customer survey starts by evaluating each product against the buying criteria. Next, these assessments are weighted by the criteria's level of importance. For example, the Europe Performance segment assigns a higher importance to positioning (43%) than the Europe Budget segment (21%). A well-positioned product earns a higher score in the Customer Satisfaction Survey in the Performance than in the Budget segment.

From there, the Customer Satisfaction Score takes into account your product's Awareness and Accessibility, and finally, your company's Accounts Receivable (A/R) policy.

It's important to know that in each region, Price listed in the Buying Criteria reflects Local Price. Local Price is your translated sales price after currency exchange rates.

MARKETING DETAILS

PRICE & CURRENCY FLUCTUATIONS

What is the right price for your product? Well, it depends.

Customers in each market have a different view of price as you can see in the customer buying criteria. To the budget buyer, price is the most important thing. For a buyer looking for top quality, however, it is less important. Even if your products are very reasonably priced, if all other things are equal, you will lose market share to a competitor with lower prices.

So, be sure to pay attention to what your customers want and what the competition is delivering in order to price your products accurately.

In the Europe and Asia Pacific regions, the price you enter will translate into Local Price based on the current exchange rate to US dollars. You can find the exchange rate at the beginning of the year in the top left of the Marketing interface under the Regional tab or in the segment pages (pg. 8-13) of The Globe.

FORECASTS TABLE

This section displays your sales forecast based on your Worst Case estimates. The more accurate your forecasts, the more accurate the financial projections for the upcoming year.

The table and chart are dynamic, so as you click a line item in the table, the data displays in the chart to the right.

BEST CASE FORECAST

Best Case sales forecast per region. The calculation assumes that enough units will be built to meet your Best Case forecast.

WORST CASE FORECAST

Worst Case sales forecast per region. The calculation assumes that enough units will be sold to meet your Worst Case forecast.

GROSS REVENUES

Total gross revenues per region. Calculated as a sum of all product gross revenues in the region (Worst Case forecast x Price).

MARKETING DETAILS

VARIABLE COSTS

The sum of material, labor, shipping and inventory carry costs. The variable cost forecast for each product -- (Material Cost plus Labor Cost plus Inventory Carry Costs) multiplied by Unit Sales.

Material Cost and Labor Cost are found on the Production page, and assumes there is no remaining inventory to carry.

FORECAST CONTRIBUTION MARGIN

Gross Revenue Forecast less variable costs.

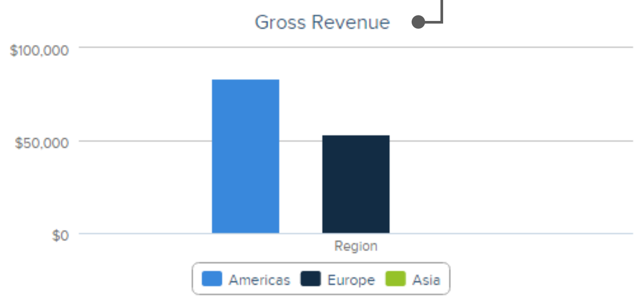
NET MARGIN

Contribution Margin less associated promotion and sales budgets.

Click here . . . to view it here

Forecasts

	Americas	Europe	Asia Pacific	Total
Best Case	2,600	1,600	0	4,200
Worst Case	2,200	1,400	0	3,600
Gross Revenue	$83,600	$53,200	$0	$136,800
Variable Costs	$49,299	$26,408	$0	$75,707
Contribution Margin	$34,301	$26,792	$0	$61,093
CM Less Promo/Sales/Tariffs	$20,801	$13,292	$0	$34,093



PRODUCTION

Your Production Department is responsible for manufacturing enough products to meet customer demand, as per your marketing forecasts for each region. In addition, Production determines the level of capacity and automation on your production lines and has to manage the cost of upgrading the plant. Your company has only one plant, which is located at your headquarters in the Americas region.

From the Americas you can ship products to Europe or Asia, but only if you have enough capacity to make enough products to fill demand. If you do not have enough production capacity, you can either add to your plant by purchasing more capacity, or you can outsource to an external manufacturing plant to build the remaining units.

1 PRODUCTION SUMMARY

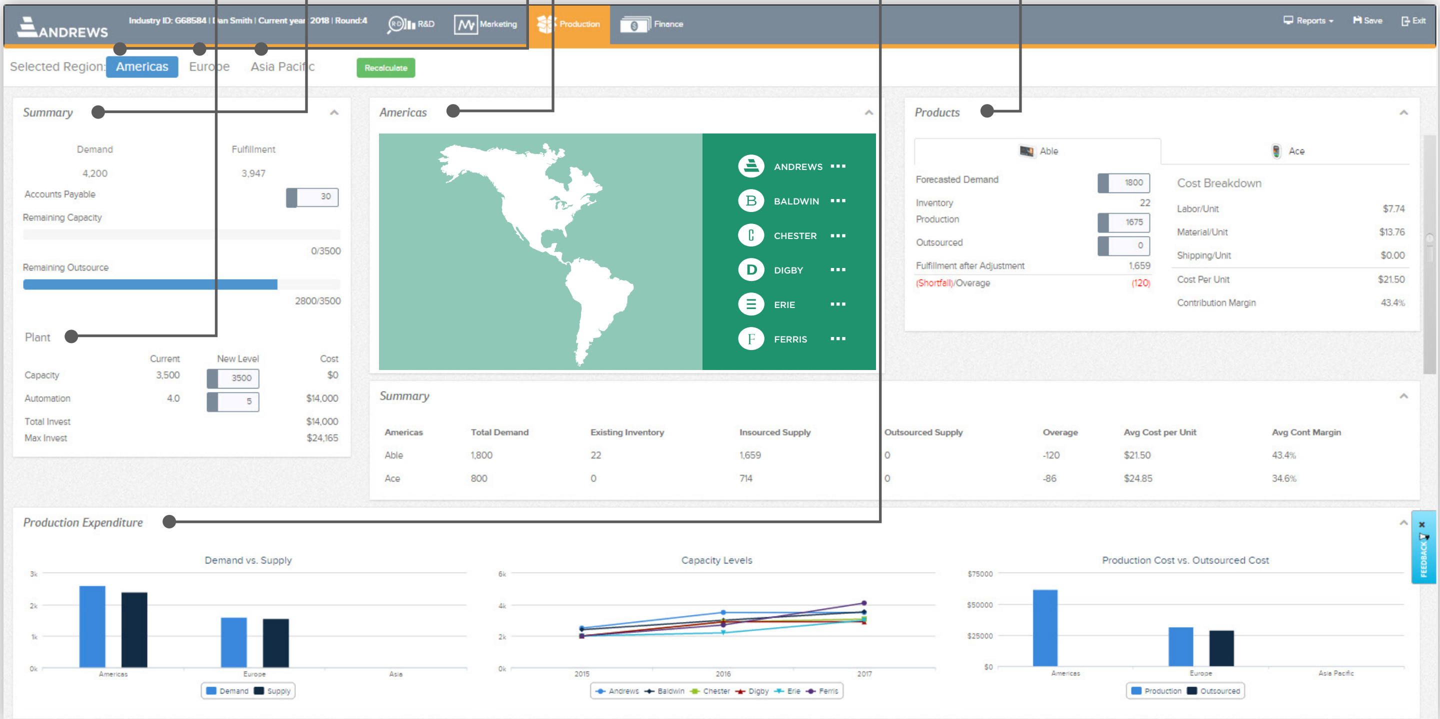
2 REGION MAP

3 PRODUCT DECISIONS

4 PLANT INFO

5 REGION TABS

6 PRODUCTION CHARTS



PRODUCTION DEPARTMENT

① PRODUCTION SUMMARY

The Production Summary box contains information regarding overall production and outsourced capacity remaining, whether demand has been fulfilled and your Accounts Payable (A/P) policy. Adjusting your A/P policy impacts the delivery of raw materials used to build units of your product.

② REGION MAP

The region map displays the companies that are shipping products to that region.

If a company operated in a region in the prior year, then the company logo will be illuminated. Clicking on the logo will provide you with relevant market information.

③ PRODUCT DECISIONS

The product decisions box is where product level decisions are executed for that region. The demand forecast is for the active product, so any excess production or outsourced units are added to the product's inventory.

④ PLANT INFORMATION

Plant information displays your manufacturing plant's total capacity and automation level. You can purchase additional capacity and raise your plant's automation level to produce more units at a higher efficiency, but this comes at a cost. Each year, you have a maximum allotted investment that you cannot exceed.

⑤ REGION TABS

Production runs are determined by region, so production decisions need to be made in each region. Remember to balance the cost of production and outsourcing against shipping and tariffs.

⑥ PRODUCTION CHARTS

This section contains additional information regarding the company and the business environment.

PRODUCTION DECISIONS

PLANT – CAPACITY & AUTOMATION

Capacity determines how many units the plant is capable of producing.

Automation refers to the level of production processes for the machinery that can be done without manual human labor – the higher the automation rating, the fewer workers are needed to operate the plant.

The plant's capacity can be distributed across products or allocated to just a couple of products with the rest being outsourced.

You can increase or decrease your plant's capacity and automation by entering your desired automation level in the blue cells. In the simulation, your plant starts with an automation level of 3.

- To increase the amount in Round 1, enter a number greater than 3.
- To decrease the amount in Round 1, enter a number less than 3.

PRODUCTION RUN

In the Production page, to the right of your screen, production schedules for products and regions are set and adjusted. The Forecast Demand is the Best Case sales forecast you entered on the Marketing screen.

In the gray cells below Forecast Demand, you enter the number of units you want to produce in-house this year (Production) and the number of units (if any) you choose to have made at an external plant this year (Outsourced), for each of your products.

The Cost Breakdown chart provides a complete picture of labor, material, shipping and tariff costs.

Below that is a Summary of Products by Region, showing demand and whether you intend to meet it with in-house or outsourced production.

If you intend to sell your products in Europe or Asia Pacific, you MUST switch to the Europe and Asia Pacific tabs and enter your Production and/or Outsourced values in the blue decision cells.

OUTSOURCING

Your Outsourcing Plant is located just off the coast of the Americas region. Outsourced capacity matches your own plant capacity. For example, if you have 2,500 units of Capacity in your Plant, you will also have 2,500 units of Capacity available to you through Outsourcing. Outsourced capacity uses an automation level of 2.0 that cannot be changed over the course of the entire simulation.

Products shipped to Europe or Asia Pacific that do not sell are stored as inventory in that region, regardless of the amount of inventory on hand.

PRODUCTION DETAILS

BUY/SELL CAPACITY

On the left, under the Plant section, you can see your current plant capacity. The Production Department must determine if there is enough capacity to meet the forecast demand, and if not, how it will be met. Enter a larger number than you currently have in the gray cell to add capacity. Additional capacity is available to use from the date of purchase.

Enter a smaller number in the gray cell to sell off existing capacity. Capacity is sold on January 1 for 65% of the purchase price. When the capacity is sold, the sale completes immediately and the funds are immediately available for use.

The cost of additional capacity depends on the current automation level on your line.

AUTOMATION

In the Automation cell, you can increase the level of automation required for the following round. For example, to raise the automation 1.0 unit from the starting level of 3.0, simply enter 4.0 in the blue automation cell.

An automation rating of 1.0 equals very little automation and significant labor costs. A rating of 10.0 equals heavy automation with few workers and low labor costs. However, automation is expensive. For every point of change (up or down) companies are charged $4 per unit of capacity; changing an assembly line with 1 million units of capacity from an automation of 5.0 to an automation of 6.0, therefore, would cost $4 million.

Labor and Material Costs make up a large portion of your product's variable costs. As previously stated, Material Costs come directly from your product's Speed and Accuracy coordinates and Service Life hours. Labor costs are based on the automation level of your Production or Outsourcing plant.

While automation optimizes your plant's performance and lowers labor costs, it also adversely affects your ability to create and modify products in the R&D department. For each level of automation you add, it becomes increasingly difficult to reposition your products. For more detailed information on Automation, please see page 72 of the Glossary.

INVESTMENT

The Total Invest line represents the cost, in thousands of dollars, of capacity and automation added to your plant. The Max Invest line represents the maximum amount your company can invest in production this year, depending on your capital budget limit. The capital budget limit is determined by the maximum amount that can be raised through stock and bond issues plus excess working capital, minus the total amount of

PRODUCTION DETAILS

stock dividends to be paid in the current year. See the Glossary on page 77 for details on how Excess Working Capital is calculated.

LABOR COST & WAGES

During the Monopolies Commission's investigation, Medicorp initiated a campaign to only hire union workers in all its production facilities, internal and outsourced. Upon the dissolution of Medicorp, the six resulting companies continued to maintain this promissory agreement. As a result, all workers start Round 0 at a rate of $20/hour with yearly raises of 5%.

SHIPPING PER UNIT

Your plant and your outsourced capacity are all located in or near the Americas region. Therefore, no shipping cost per unit is charged on product delivered to the Americas. There is, however, a shipping cost of $3.00 per unit to Europe, and $2.50 per unit to Asia.

TARIFF PER UNIT

Over the course of the simulation, only the European region will have a tariff per unit. This tax comes to 4.5% of each unit's sale price.

FULFILLMENT AFTER ADJUSTMENT

Your Production order is adjusted by your Accounts Payable (A/P) policy, and added to your Outsourcing order, which gives you the Fulfillment after Adjustment figure.

In Production and Finance, you can adjust your Accounts Payable (A/P) policy, which is the lag between when you receive materials from your suppliers and your payment date. The default is 30 days, which will give you 99% of your ordered amount. You can adjust this between 0 and 150 days. The longer you make your suppliers wait for payment, the fewer materials you receive, which results in fewer units being produced. Additional details can be found on the Production interface in the Customers tab.

Adding your existing inventory to your Fulfillment after Adjustment gives you the total units produced for the current year.

Note: You will produce units of new products prior to their release to the world. Before the product's release, the hardware, casing, and circuit boards are developed. At the time of release, the firmware of the genetic testing device is updated, and your products are ready to sell. For each new offering, you can produce units throughout the year that will then be available for sale upon the product's release.

Capacity is the number of units you can produce before outsourcing.

Automation is the level of automated processes on your production line that replace manual labor.

FINANCE

Your Finance Department is primarily concerned with five issues:

1. Acquiring the capital you need to expand your company's assets
2. Establishing a dividend policy to maximize the return to shareholders
3. Setting an Accounts Payable (A/P) policy and Accounts Receivable (A/R) policy
4. Driving the financial structure of the firm and its relationship between debt and equity
5. Selecting and monitoring performance measures that support your strategy

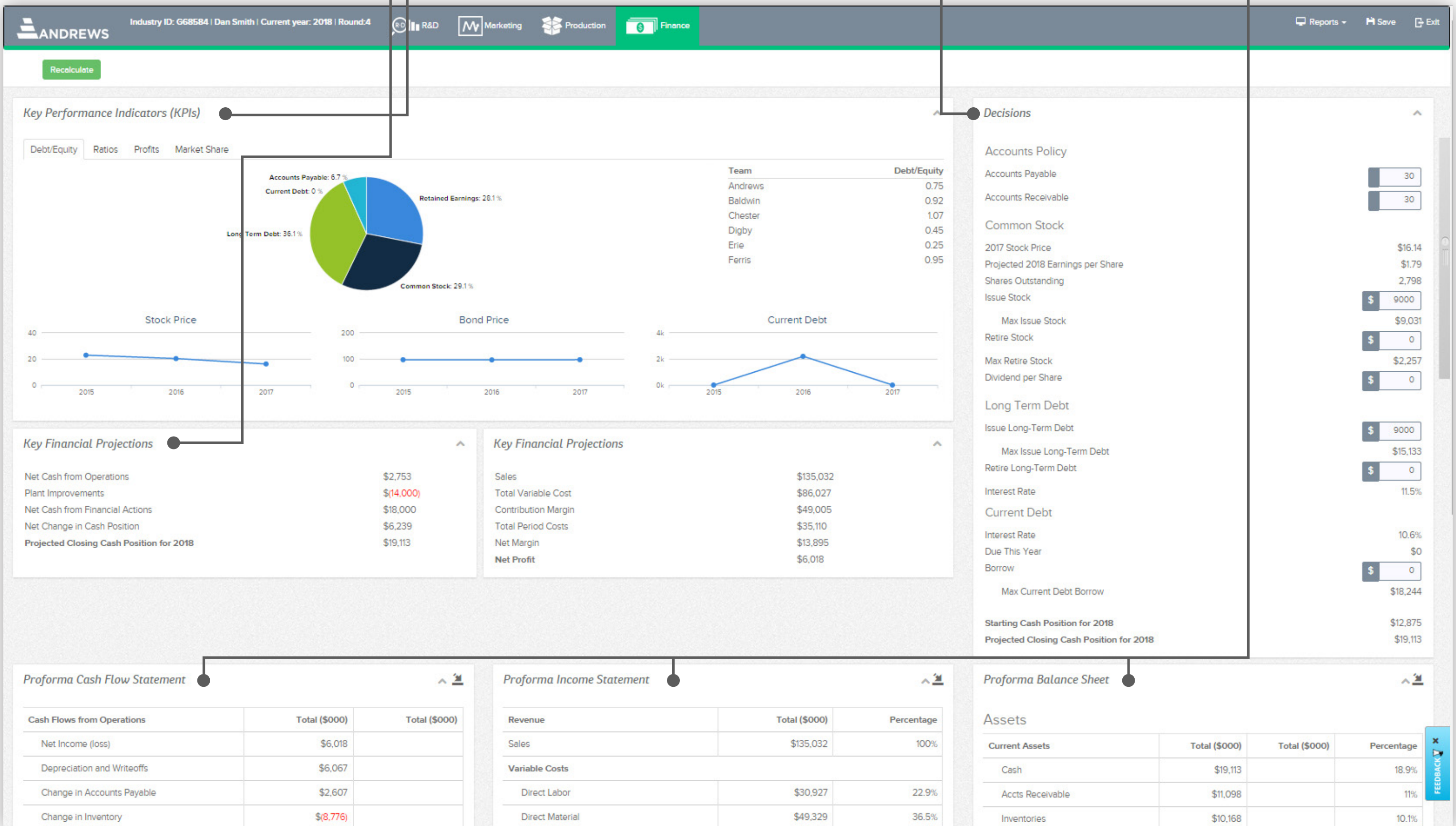
Finance decisions should generally be made after all other departments have entered their decisions. After the management team has decided what resources it needs in Marketing, R&D and Production, the Finance Department determines where and how to find the funds.

① KEY PERFORMANCE INDICATORS (KPIs)

② FINANCE DECISIONS

③ KEY FINANCIAL PROJECTIONS

④ PROFORMA FINANCIAL STATEMENTS



FINANCE DEPARTMENT

① KEY PERFORMANCE INDICATORS (KPIs)

A summary of the previous year's KPIs for all companies. The main chart is supplemented by secondary charts below for additional context.

Debt/Equity – shows the debt to equity position for your company and your competitors. It also contains the stock price history, bond price history (showing all outstanding bonds) and current debt history (including amount due this year and interest rate.)

Ratios – measures your progress compared to your competitors on ROS, ROA and ROE; leverage; days of working capital and asset turnover.

Profits – tracks profits, margins and cash flow compared to your competitors.

Market Share – the total market share by sales of each company overall, plus regional market shares.

② FINANCE DECISIONS

This is where the decisions are made regarding how to pay for the costs of developing, producing and selling the company's products. It is also where cash is managed, dividends are paid and the A/P and A/R policies are determined.

③ KEY FINANCIAL PROJECTIONS

These financial projections are based on the forecasts, pricing and investment decisions made in the department decision pages. These projections provide a snapshot of the company's operational decisions and income breakdown, based on your Worst Case Forecasts.

④ PROFORMA FINANCIAL STATEMENTS

The proforma financial statements, like the key financial projections, are projections based on sales forecasts, pricing and costs entered in the department decisions.

The proformas do not reflect your exact financial situation in the next round! They calculate the numbers based on your forecasts.

FINANCE DECISIONS

ACCOUNTS POLICY

Here is where you decide on your company's Accounts Payable (A/P) policy – how long you will take to pay your suppliers – and Accounts Receivable (A/R) policy – how long you extend credit before your customers must pay you.

COMMON STOCK

As a publicly traded company you can issue stock (to raise more funds), retire stock (to improve your stock price) and determine a dividend policy. You can choose if the company's earnings are retained to reinvest for future growth or distributed to shareholders in the form of dividends.

LONG-TERM DEBT

Long-term debt in the form of bonds is traditionally used to finance long-term assets – to purchase a new production line, for example.

CURRENT DEBT

Current or short-term debt is traditionally borrowed for short-term purposes that will allow you to pay it back within the year – for additional working capital to build more inventory, for example. You are shown the interest rate on your current debt.

ISSUING DIVIDENDS TO SHAREHOLDERS

The owners of a company invest in that company so they can realize a return on their money. Rather than put money into a bank, they put it into a company with the expectation that their money will work harder (receive a higher return) if the company succeeds. It is riskier than money in the bank, but the potential rewards are greater.

Money is returned to investors through dividends. Paying dividends can impact the stock price. A healthy stock price increases your ability to raise capital for investments, which in turn can return further profits. While issuing dividends can keep shareholders happy in the short-term, there will be impacts on your working capital and ability to invest in your long-term strategy if too much is given back.

PROFORMAS

Your company's proforma financial statements can be accessed at the bottom of the Finance page. The proformas are the cash flow statement, income statement and balance sheet for your company that are updated each time you make a decision. They calculate costs, profits and the financial ratios that measure your success, based on your forecasts.

FINANCE DETAILS

They do not reflect actual results.

Why not? Because your forecasts will be at least a little wrong, as you have no way of knowing exactly what your competitors are going to do this year. The proformas, therefore, are guideposts only – demonstrating how your financial position is likely to be affected by the decisions that you are taking, if your revenue forecasts are more or less accurate.

The only financial statements that are completely accurate are the statements produced at the end of each round and available (via the Reports icon) as you begin the next round.

For more on each of the proformas, please see the Making Decisions section starting on page 49.

EMERGENCY LOANS

If your company runs completely out of cash during the year – because you did not meet your sales forecast, for example – a lender of last resort named Big Al bails you out. Big Al provides an emergency cash injection, but because it is a quick fix, it comes with very high interest rates.

The upside is that you will never become bankrupt and be locked out of the simulation. The downside is that a Big Al loan will drain your resources for some time to come. Big Al provides an emergency cash injection, but because it is a quick fix, you are charged interest rates at 7.5% higher than your current rate. For more information, see the Glossary on page 76.

Projected emergency loans are automatically adopted into the profomas as Borrowed Current Bank Debt under Cash Flows from Financing and Next Cash from Financial Actions under Key Financial Projections.

Note that the Projected Closing Cash Position for [Next Year] under Key Financial Projections is always greater than, or equal to, zero. However, Projected Closing Cash Position for [Next Year] under Decisions can be negative. This difference is the value of the projected emergency loan.

FINANCE DETAILS

CREDIT POLICY

The credit policy is how much leeway you give people who owe you money and how much leeway you give yourself to pay others you owe.

Although it may be tempting to make others pay cash on delivery and give yourself a 90 day "bill me later" policy, these decisions have an impact on how people do business with you. Like most decisions in business, a bit of give and take goes a long way.

ACCOUNTS RECEIVABLE

A company's Accounts Receivable (A/R) policy sets the amount of time customers have to pay for their purchases. It can significantly impact the customers' willingness to buy your products.

If you shorten the A/R lag from 30 to 15 days, for example, you are tightening the terms of the loan you made to customers when you said "pay me later."

Because changes in your credit terms affect your customers' buying decision, it affects your Customer Satisfaction Score. For more information, see Glossary on pages 75-76 for more information on setting your A/R policy.

ACCOUNTS PAYABLE

The Accounts Payable (A/P) lag has implications for production. Suppliers become concerned as the lag grows and they start to withhold material for production.

Withholding material creates shortages on the assembly line. As a result, workers stand idle and per-unit labor costs rise. For more information, see the Glossary on pages 75-76 for more information on setting your A/P policy.

MAKING DECISIONS

TOOLS

INDUSTRY WIDE REPORT: THE GLOBE

The Globe is the industry journal, which displays all the industry information from the previous round (year) to help you make decisions for the current round. You can access it via the Reports icon. The Globe is THE source for industry conditions, competitor analysis and market trends. It is not an overstatement to say that your company will not succeed unless you refer to The Globe constantly in your decision-making.

The Globe is produced on December 31st each year so the information is historical. The Globe available as you begin Round 1 displays the results for Round 0 (the starting conditions for the simulation). The Globe available in Round 2, displays the results for Round 1, and so on throughout the simulation.

FRONT PAGE

Use the first page of The Globe to see a snapshot of last year's results. Be sure to compare your company's sales, profits and cumulative profits with your competitors'. Be sure to also note the market share reports by region.

STOCK & BOND SUMMARIES

The Stock and Bond Summary (page 2 of The Globe) reports stock prices and bond ratings for all companies.

FINANCIAL SUMMARY

The Financial Summary (page 3 of The Globe) surveys each company's cash flow statement, balance sheet and income statement. This will give you a clear picture of your competitors' financial health. In-depth financial reports for your own company are also available via the Reports icon, with information not provided to your competitors.

REGIONAL INCOME STATEMENT

The Regional Income Statement (page 4 of The Globe) summarizes all companies' performance, in the form of an income statement, across each of the three regions. This will provide you with a quick snapshot of which companies are succeeding or failing in each of the global markets.

TOOLS

PRODUCTION ANALYSIS

The Production Analysis (pages 5-7 of The Globe) reports detailed information about each company's plant and each product in the market, including sales and inventory levels, price, and variable costs.

Pages 6 and 7 of The Globe break the products down into their respective primary segments. Page 6 shows Budget products, and Page 7 shows Performance products.

SEGMENT ANALYSIS

The Segment Analysis (pages 8-13 of The Globe) reviews each market segment per region in detail.

The Statistics box at the top reports Total Industry Unit Demand, Actual Industry Unit Sales, Segment Percent of Total Industry and Region, and Next Year's Growth Rate – important information for sales forecasting and production planning. The Customer Buying Criteria box ranks the importance of each characteristic to the customers in each segment – important information for product development.

Ideal Position: The preferred product location, also called the ideal spot, as of December 31 of the previous year. Remember: ideal spots drift with the segments, moving a little each month.

Price: Shown in local currency (i.e. Euros in Europe). Every year on January 1, price ranges drop by $0.50. Remember: the price range in The Globe is the price range from last year.

Age: Age preferences stay the same year after year.

Service Life: Service Life expectations stay the same year after year.

TOOLS

MARKET SHARE REPORT

The Market Share Report (page 14 of The Globe) details sales volume in all segments, reporting each product's actual and potential sales.

PERCEPTUAL MAP

The Perceptual Map (page 15 of The Globe) displays the segments and each product in the industry, showing their position at December 31st of the previous year.

PROFORMAS

The proformas include your company's Balance Sheet, Cash Flow Statement and Income Statement. They are intended to predict your company's financial results based on the decisions you have entered. However, as has been previously mentioned, they will not be 100% accurate, because you do not know exactly what your competitors will do.

BALANCE SHEET

The balance sheet lists the dollar value of what the company owns (assets), what it owes to creditors (liabilities) and the amount contributed by investors (equity). Assets always equal liabilities plus equity.

Assets = Liabilities + Equity

Assets are divided into two categories, current and fixed. Current assets are those that can be quickly converted to cash, generally in less than a year. Fixed assets are those that cannot be easily converted such as plant and equipment (see Capacity and Automation page 41).

Liabilities include accounts payable, current debt and long-term debt. In the simulation, current debt is comprised of one-year bank notes; long-term debt is comprised of 10-year bond issues.

Proformas will show you how one decision impacts the others.

TOOLS

Equity is divided into common stock and retained earnings. Common stock represents the money received from the sale of shares; retained earnings is the profit that was not distributed back to shareholders as dividends, but reinvested in the company.

INCOME STATEMENT

Your company can use the income statement to diagnose problems on a product-by-product basis. Revenue (or sales) for each product is reported in dollars (not the number of products). Subtracting Variable Costs (labor, material inventory carry and shipping costs) from sales determines the contribution margin. Inventory carrying costs are the storage and administration costs required to manage products left in the warehouse. If your company has $0 inventory carrying costs, you stocked out of the product and most likely missed sales opportunities. If your company has excessive inventory, your carrying costs will be high. Sound sales forecasts, matched to reasonable production schedules, result in modest inventory carrying costs. Finally, shipping costs are calculated if you sent units to Europe or Asia. Please see the Regional Operating Costs on page 62 for more details on shipping costs across regions.

Period Costs are depreciation added to sales, general and administrative (SG&A) costs, which include R&D, promotion, sales and administration expenses. Period costs are subtracted from the contribution margin to determine the net margin. The net margin for all products is totaled then subtracted from other expenses, which in the simulation include fees and write-offs. This determines earnings before interest and taxes, or EBIT. Finally, interest, taxes, tariffs and profit sharing costs are subtracted to determine net profit.

CASH FLOW STATEMENT

The cash flow statement indicates the movement of cash through the organization, including operating, investing and financing activities. The annual report's cash flow statement shows the change in the amount of cash from the previous year. The proforma cash flow statement indicates the expected change at the end of the upcoming year.

FORECASTING

Forecasting requires a little math and a little logic. For example, does your forecast predict your product will acquire half a segment's sales when there are four or five products in the segment? Unless your product's positioning, age and Service Life are significantly superior to all competitive products and your price is at the low end of the range, it is not likely that you will acquire half the sales. Does your forecast predict you will take only one tenth of the sales when there are four or five products in the segment? Unless your product's positioning, age and Service Life are significantly inferior, and your price is at the high end of the range or above, chances are you can sell more.

Forecasts are used by the proformas to calculate financial projections. If you enter a forecast that is unrealistically high, the proformas will take that forecast and project unrealistic revenue. You must enter values into the Worst Forecast cells on the Marketing page to project financial results.

BASIC FORECASTING METHOD

Last year's sales can be a good starting point for this year's forecasts. For example, if the American Budget segment growth rate for the upcoming year is 9.2%, you can say, "All things being equal, we can expect to sell 9.2% more units this year than last year in the American Budget segment."

To calculate your forecast based on that assumption, perform the following calculation (for this example, assume you sold 1.1m units last year without running out of inventory):

Last years Units Sold x (100% + Growth Rate) = Next year's Forecast

1,100,000 x 1.092 = 1,201,200

If your product stocked out, calculate what it could have sold by multiplying the segment demand by your potential sales percentage reported on page 14 of The Globe - the Market Share Report. Then, perform the same calculation based on that number.

Is this number valid? It is highly unlikely that the market in the upcoming year will be identical to the previous year. Prices will adjust and repositioning projects will complete – in turn, the playing field will change. Still, this number can provide you with a good start as you assess your product offer and speculate what your competitors will offer.

FORECASTING

Keep in mind the possibility that your products sold because competitors who otherwise would have made sales under-produced and stocked out. Page 14 of The Globe displays actual and potential sales as a percentage for each product. If your actual sales far exceeded your potential because your competitors under-produced, you cannot count on them making the same mistake again.

QUALITATIVE ASSESSMENT

Compare your product to others competing within the segment and decide whether it is better or worse than the competition. Start with the Perceptual Map (page 15 of The Globe). It shows where products are currently placed. The Revision Dates at the bottom of the page reveal the timing of any future repositioning projects. Continue the comparison using The Globe Segment Analysis pages. These report each product's:

Age

- does the product satisfy customer age demands?

Service Life

- is Service life near the top of the range?

Price

- will price trends continue or will new automation facilitate a price reduction? (Remember, price ranges drop $0.50 per year.)

Awareness and Accessibility

- are these percentages leading, keeping pace with or falling behind other products?

All these elements contribute to the monthly Customer Satisfaction Score.

DECEMBER CUSTOMER SATISFACTION SCORE (CSS)

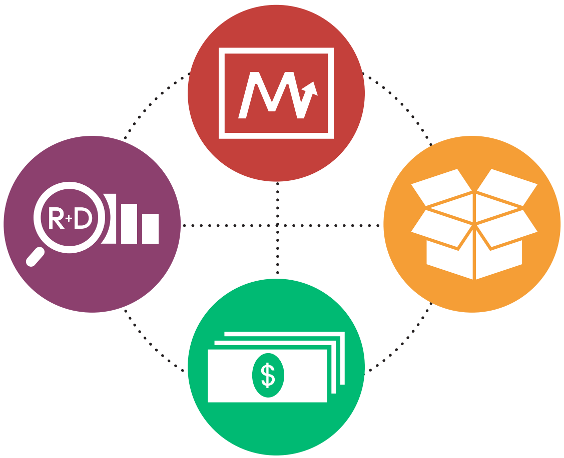
Will your product be better or worse than average? The clearest indicator is the December Customer Satisfaction Score in the lower part of each Segment Analysis page. The CSS drives demand each month. For example, if there are four products in December scoring 32, 28, 22 and 14 (for a total of 96), then the top product's December demand would be 32/96 or 33%.

Top Product in Segment's Score / Sum of All Scores = 32 / (32 +28 +22 + 14) = 32 / 96 = 33%

What monthly CSS will your product have during the year? The score will change from month to month because the segments drift, your product ages and it might be revised. Each monthly score is driven by how well your product satisfies the segment buying criteria, plus its awareness and accessibility levels.

DECISION MAKING PROCESS

You will engage in the simulation either as an individual or as a member of a team. This section will cover the elements of decision making that are necessary whichever mode of simulation you are in, followed by some of the critical issues for team-based decision making.



CROSS-FUNCTIONAL PLANNING

Whether you are operating as a team or as an individual, careful coordination between the different departments of your business is critical to your success. Here is a guide to some of the key interactions between departments:

R&D AND MARKETING

R&D works with Marketing to make sure products meet customer expectations.

R&D AND PRODUCTION

R&D works with Production to ensure assembly lines have enough capacity to deal with new products. R&D must notify Production if they discontinue a product.

MARKETING AND PRODUCTION

Marketing works with Production to make sure manufacturing quantities are in line with forecasts. Marketing's market growth projections also help Production determine appropriate levels of capacity. If Marketing decides to sell a product in additional global markets, it tells Production to plan for more capacity.

MARKETING AND FINANCE

Marketing works with Finance to project revenues for each product and to set the Accounts Receivable policy,

CROSS-FUNCTIONAL PLANNING

which is the amount of time customers can take to pay for their purchases.

FINANCE AND PRODUCTION

Production tells Finance if it needs money for additional equipment. If Finance cannot raise enough money, it can tell Production to scale back its requests or perhaps sell idle capacity.

FINANCE AND ALL DEPARTMENTS

The Finance Department acts as a watchdog over company expenditures. Finance should review R&D, Marketing and Production decisions. Finance should ensure that R&D updates align with the overall strategy. Finance should crosscheck Marketing's forecasts and pricing. Are forecasts too high or too low? Will customers be willing to pay the prices Marketing has set? Is Production manufacturing too many or too few units? Does Production need additional capacity, or should the company outsource more units? Has Production considered lowering labor costs by purchasing automation?

CHOOSING A TEAM STRUCTURE

Teamwork presents both challenges and advantages when you are running a simulated business – just as it does in the real world. There is no one 'correct' team structure – other than the one that works! Some common team structures are:

DEPARTMENT MANAGERS

Each team member has responsibility for the decisions in one department (Marketing, for example) communicating and collaborating strategy through a series of cross-departmental meetings to align decisions with company strategy.

PRODUCT MANAGERS

Each team member is responsible for one product, either across regions or per region. They are responsible for establishing development, performing upgrades, forecasting sales and setting production. Communication is focused on areas of long-term strategy, competitor analysis and shared resources.

REGIONAL MANAGERS

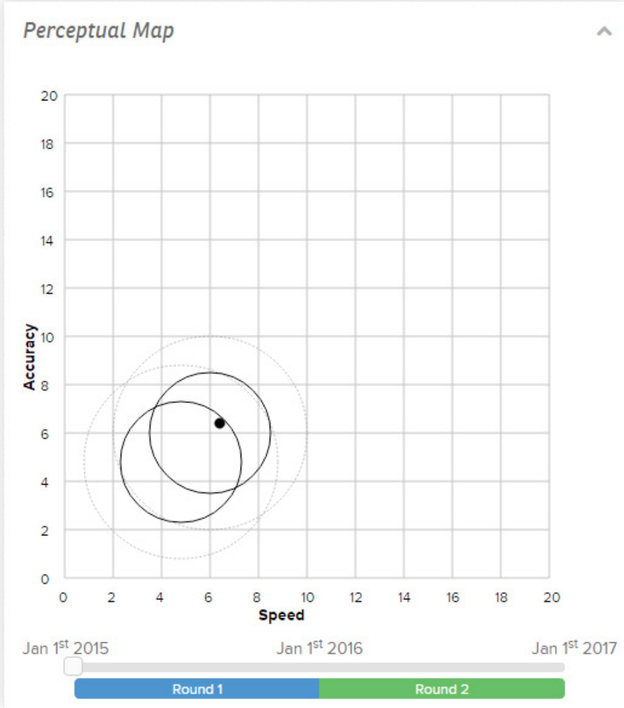
Each team member is responsible for a region's decisions across all departments, communicating with a focus on long-term strategy, competitor analysis and shared resources.

INDUSTRY STATISTICS

PERCEPTUAL MAP

We know that customers in each market segment have different requirements for the Accuracy and Speed of the products they buy. These can be tracked, as they change over time, on a perceptual map.

This is the perceptual map from the end of Round 0. You'll notice outlines for the fine cut (solid line) and rough cut (dotted line) and points representing the ideal spot for your products at the beginning of the simulation.



INDUSTRY STATISTICS

SEGMENT CENTERS

To map the segment circles on the perceptual map, you need to know the center point for the segment. The segment circles have a radius of 2.5 units. The center point for each circle in each round of the simulation is listed opposite.

The information in the table to the right reflects the segment centers at the end of the round. Therefore, the Round 0 positions are the Round 1 starting positions, and so on. Each month, from January to December, the segments drift 1/12th of the distance from the starting position to the ending position for that round, so they are never static. This means that a product positioned on the ideal spot in January will be increasingly further away as the year goes on, impacting it's attractiveness to customers.

	BUDGET		PERFORMANCE	
ROUND	SPEED	ACCURACY	SPEED	ACCURACY
0	4.8	4.8	6.0	6.0
1	5.3	5.3	6.7	6.7
2	5.8	5.8	7.4	7.4
3	6.3	6.3	8.1	8.1
4	6.8	6.8	8.8	8.8
5	7.3	7.3	9.5	9.5
6	7.8	7.8	10.2	10.2
7	8.3	8.3	10.9	10.9
8	8.8	8.8	11.6	11.6

DRIFT RATES

Each year the segments drift up and to the right, mimicking the way customers' preferences evolve to demand faster and more accurate genetic diagnostic test devices. In each year of the simulation, the rate of change in customers expectations can be plotted according to the chart on the right:

	SPEED	ACCURACY
BUDGET	+0.5	+0.5
PERFORMANCE	+0.7	+0.7

INDUSTRY STATISTICS

IDEAL SPOTS

We also know that within each market segment, there is an 'ideal spot' which represents the highest concentration of buyers. The information in the table below shows the Ideal Spot "offsets," or how far away the ideal spot is from the segment center. Remember the ideal spot is different from the segment center in the Performance market because customers constantly demand faster, more accurate devices. From a customer's perspective, if they buy a product at the ideal spot, it will still be a cutting edge product when it wears out.

	SPEED	ACCURACY
BUDGET	+0.0	+0.0
PERFORMANCE	+1.4	+1.4

SEGMENT SIZES BY REGION

At the beginning of the simulation, more units in the Budget segment are sold than the Performance segment. With the industry becoming global, demand across the three regions is projected to grow. Below is the total number of units demanded the year before you took over your company (Round 0 of the simulation).

	AMERICAS	EUROPE	ASIA PACIFIC
BUDGET	5,838	1,994	553
PERFORMANCE	3,195	697	216

GROWTH RATES

Over the course of the simulation, each segment in each region will grow at a different rate. In this simulation, these growth rates will be the same from round to round. For Round 1, the first year you will manage your company, growth rates are as follows:

	AMERICAS	EUROPE	ASIA PACIFIC
BUDGET	6%	18%	43%
PERFORMANCE	13%	31%	49%

BUYING CRITERIA

Customers in the Americas, Europe and Asia Pacific value the four buying criteria differently in each segment. Budget customers are seeking proven products, are indifferent to technological sophistication and are price motivated. Performance customers are seeking cutting-edge technology that delivers improvements in Accuracy and Speed through new designs. Below are the individual buying criteria for each regional segment.

BUDGET SEGMENT

Americas – Budget Segment
+ Price, \$15-\$35 — importance: 55%
+ Age, 3 years — importance: 19%
+ Ideal Position — importance: 17%
+ Service Life, 14,000-20,000 — importance: 9%

Europe – Budget Segment
+ Price, €15-€35 — importance: 50%
+ Ideal Position — importance: 21%
+ Age, 3 years — importance: 15%
+ Service Life, 14,000-20,000 — importance: 14%

Asia Pacific – Budget Segment
+ Price, S\$15-S\$35 — importance: 60%
+ Ideal Position — importance: 14%
+ Service Life 14,000-20,000 — importance: 14%
+ Age, 3 years — importance: 12%

PERFORMANCE SEGMENT

Americas – Performance Segment
+ Ideal Position — importance: 39%
+ Age, 0 years — importance: 32%
+ Service Life, 17,000-23,000 — importance: 19%
+ Price, \$25-\$45 — importance: 10%

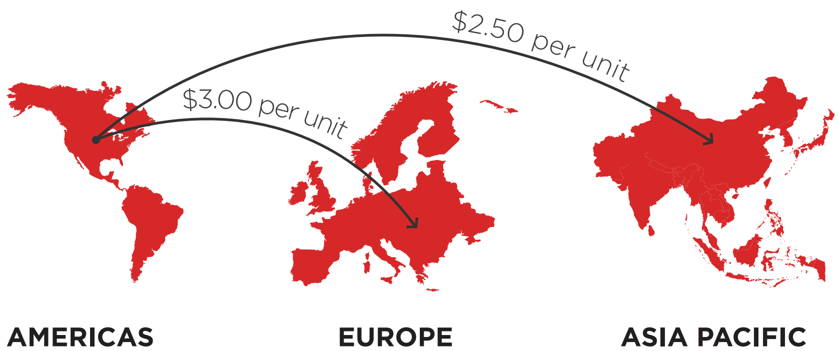
Europe – Performance Segment
+ Ideal Position — importance: 43%
+ Age, 0 years — importance: 33%
+ Service Life, 17,000-23,000 — importance 16%
+ Price, €25-€45 — importance: 8%

Asia Pacific – Performance Segment
+ Ideal Position — importance: 41%
+ Age, 0 years — importance: 28%
+ Service Life, 17,000-23,000 — importance 20%
+ Price, S\$25-S\$45 — importance: 11%

REGIONAL OPERATING COSTS

Each of the geographical regions has different operating costs. You will need to consider currency exchange rates, shipping costs, tariffs and tax rates for each region before making your final decisions each round. Below is information from the end of last year (Round 0 of the simulation). The updated information for each round of the simulation can be found in The Globe segment pages and on the Marketing tab in the simulation.

Shipping Costs
To Europe: $3.00 per unit
To Asia Pacific: $2.50 per unit



Currency Exchange Rates

Americas to Europe – $1 = €.90
Americas to Asia Pacific - $1 = S$1.25

Tariffs
Europe – 4.5% per unit
Asia Pacific – None

Tax Rates
Americas – 35%
Europe – 32%
Asia Pacific – 25%

Prime Interest Rate – 7.0%

STRATEGY

STRATEGY

DETERMINE YOUR STRATEGY

3 QUESTIONS:

1. Will your company be Local or Global?

2. Will your company be Niche or Broad?

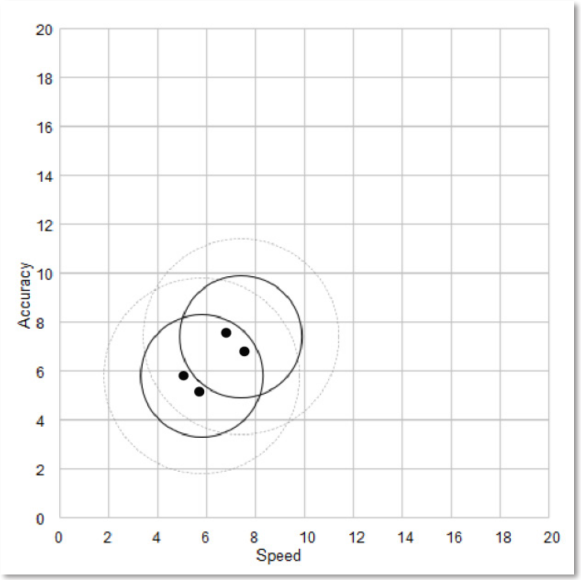
3. Will your company be a Cost Leader or a Differentiator?

LOCAL BROAD COST LEADER

To adopt a Local Broad Cost Leader strategy, the company will maintain a presence in both segments of the market across only one or two regions. Competitive advantage is gained by keeping R&D, production, shipping and raw materials costs to a minimum, enabling the company to compete on the basis of price. Prices are below average. The Plant Automation level is increased to improve margins, and Outsourcing is used sparingly – only to meet excess demand. Any international selling must be done with an eye on margins, first and foremost.

Vision Statement

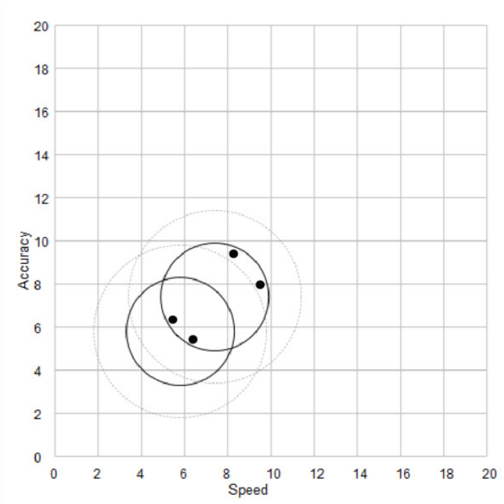
Low priced products for the local region: our brands offer solid value. Our primary stakeholders are bondholders, customers, stockholders and management.



STRATEGY

LOCAL BROAD DIFFERENTIATOR

To adopt a Local Broad Differentiator strategy, the company will maintain a presence in both segments of the market across only one or two regions. Competitive advantage is gained by distinguishing products with excellent design, high awareness, and easy accessibility. R&D competency is developed to keep designs fresh and exciting. Products keep pace with the market, offering improved accuracy and speed – and sometimes tailored region kits. Prices are above average. Capacity is expanded as higher demand is generated, and Outsourcing is used to meet additional demand.

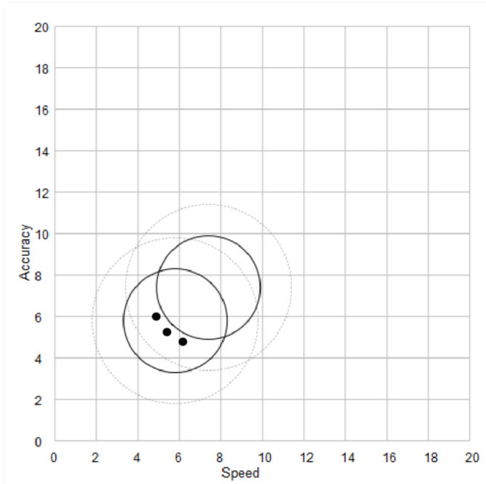


Vision Statement

Premium products for the local region: our brands withstand the test of time. Our primary stakeholders are customers, stockholders, management, and employees.

LOCAL NICHE COST LEADER

To adopt a Local Niche Cost Leader Strategy, the company will concentrate primarily on the Budget segment across only one or two regions. Competitive advantage is gained by keeping R&D, production, and raw materials costs to a minimum, enabling the company to compete on the basis of price. Prices are below average. Automation levels are increased to improve margins and to offset Outsourcing costs. The company will only use Outsourcing when it can’t meet demand with internal plant capacity levels.



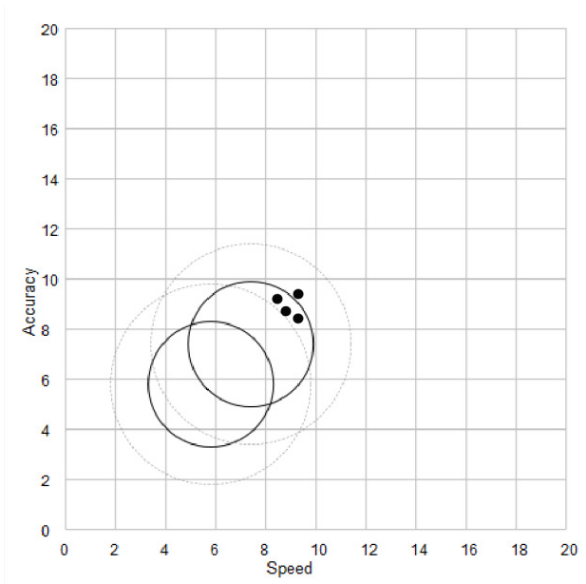
Vision Statement

Reliable products for low technology customers in the local region: our brands offer value. Our primary stakeholders are bondholders, stockholders, customers, and management.

STRATEGY

LOCAL NICHE DIFFERENTIATOR

To adopt a Local Niche Differentiation strategy, the company will focus on the Performance Segment across only one or two regions. Competitive advantage is gained by distinguishing products with an excellent design, high awareness, easy accessibility, and new products – any of which may be tailored to the local market's needs. R&D competency is developed to keep designs fresh and exciting. Products will keep pace with the market, offering improved accuracy and speed. Tailoring products with the local region kit is considered. Prices are above average. Capacity is expanded as higher demand is generated, and Outsourcing is used to meet additional demand.



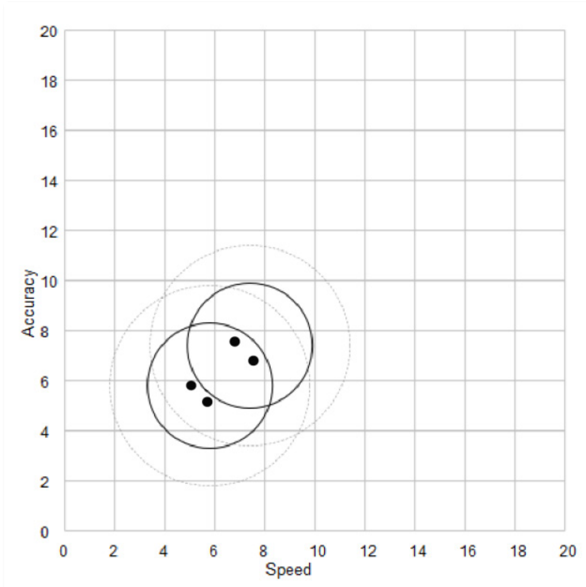
Vision Statement

Premium, tailored products for technology-oriented customers in the local region: our brands define the cutting edge. Our primary stakeholders are customers, stockholders, management, and employees.

STRATEGY

GLOBAL BROAD COST LEADER

To adopt a Global Broad Cost Leader strategy, the company will maintain a presence in both segments of the market across all regions. Competitive advantage is gained by keeping R&D costs, production costs, and raw materials costs to a minimum, enabling the company to compete on the basis of price. Prices are below average. Regional and product branding and sales efforts are below average. The Plant Automation level is increased to improve margins, and Outsourcing is used sparingly – only to meet excess demand.



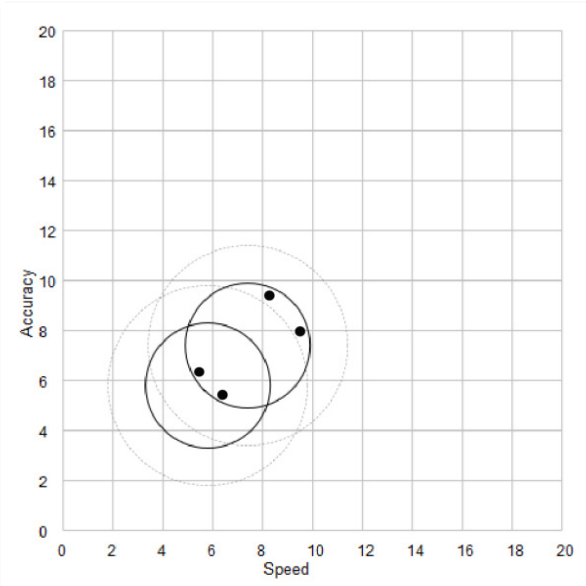
Vision Statement

Low priced products for the industry across the globe: our brands offer solid value. Our primary stakeholders are bondholders, customers, stockholders and management.

STRATEGY

GLOBAL BROAD DIFFERENTIATOR

To adopt a Global Broad Differentiator strategy, the company will maintain a presence in both segments of the market across all regions. Competitive advantage is gained by distinguishing products with an excellent design, high awareness, and easy accessibility. R&D competency is developed to keep designs fresh and exciting. Products keep pace with the market, offering improved accuracy and speed – and sometimes tailored region kits. Prices are above average. Regional and product branding and sales efforts are given a larger budget to work with. Capacity is expanded as higher demand is generated, and Outsourcing is used to meet any additional demand.



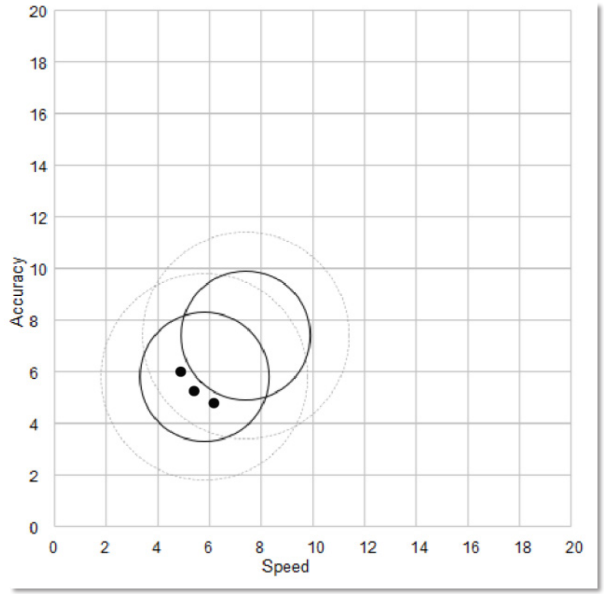
Vision Statement

Premium products for the industry across the globe: our brands withstand the test of time. Our primary stakeholders are customers, stockholders, management, and employees.

STRATEGY

GLOBAL NICHE COST LEADER

To adopt a Global Niche Cost Leader strategy, the company will concentrate primarily on the Budget segment across all regions. Competitive advantage is gained by keeping R&D costs, production costs, and raw materials costs to a minimum, enabling the company to compete on the basis of price. Prices are below average. Regional and product branding and sales efforts are below average. Automation levels are increased to improve margins, and Outsourcing is only used to meet demand.



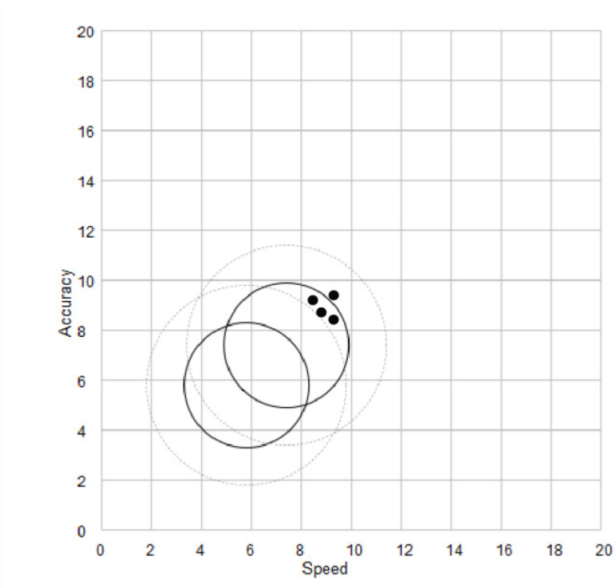
Vision Statement

Reliable products for low technology customers across the globe: our brands offer value. Our primary stakeholders are bondholders, stockholders, customers, and management.

STRATEGY

GLOBAL NICHE DIFFERENTIATOR

To adopt a Global Niche Differentiator strategy, the company will focus on the Performance Segment across all regions. Competitive advantage is gained by distinguishing products with excellent design, high awareness, easy accessibility, and new products – any of which may be tailored to the individual local market's needs. R&D competency is developed to keep designs fresh and exciting. Products will keep pace with the market, offering improved accuracy and speed. Tailoring products with specific region kits is considered. Prices are above average. Regional and product branding and sales efforts are given a larger budget to work with. Capacity is expanded as higher demand is generated, and Outsourcing is used to meet any additional demand.



Vision Statement

Premium, tailored products for technology-oriented customers across the globe: our brands define the cutting edge. Our primary stakeholders are customers, stockholders, management, and employees.

GLOSSARY

GLOSSARY

AGE SCORE

There is no rough cut for age: a product will never be too young or too old to be considered for purchase.

Customers demanding cutting-edge technology prefer newer products. The ideal age in the Performance segment is generally one and a half years or less. Customers in the Budget segment prefer proven technology, which means older designs.

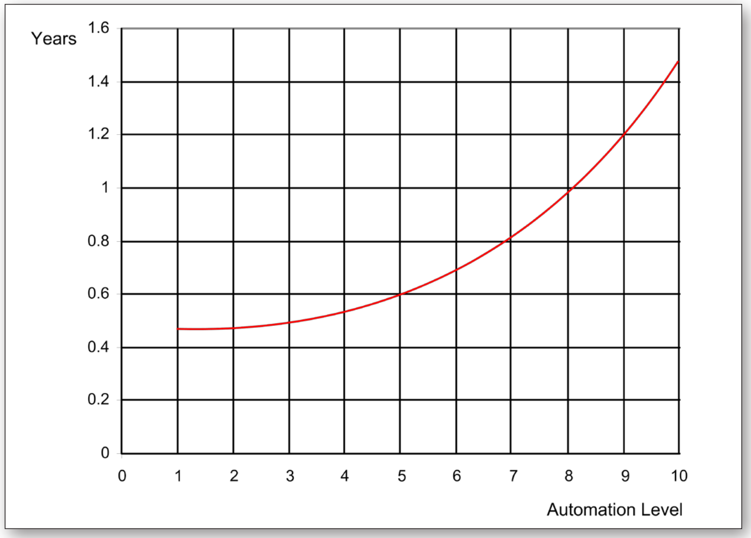
AUTOMATION

As automation levels increase, the number of labor hours required to produce each unit falls. The lowest automation rating is 1.0; the highest rating is 10.0.

At an automation level of 1.0, labor costs are highest. Each additional point of automation decreases labor costs approximately 10%. At a rating of 10.0, labor costs fall by about 90%.

Automation costs $4.00 per point of automation. Raising automation from 1.0 to 10.0 costs $36.00 per unit of capacity. Conversely, lowering automation from 10.0 to 1.0 also costs $36.00 per unit of capacity.

As you raise automation, it becomes increasingly difficult for R&D to reposition products short distances on the Perceptual Map. For example, a project that moves a product 1.0 on the map takes significantly longer at an automation level of 8.0 than at 5.0. When you're making a large move on the perceptual map, it will be less affected by a higher automation level. You can move a product a long distance at any automation level, but the project will take between 2.5 and 3.0 years to complete.



Time Required to Move a genetic testing device on the Perceptual Map 1.0 Unit at Automation Levels 1 through 10

GLOSSARY

BASE SCORES

To estimate the Customer Satisfaction Score, begin with the buying criteria available in The Globe Segment Analysis reports. For example, the buying criteria for the Asia Pacific Performance segment are:

- Ideal Position – importance: 41%
- Age, 0 years – importance: 28%
- Service Life, 17,000-23,000 – importance 20%
- Price, S$25- $45 – importance: 11%

A perfect score of 100 requires that the product has an age of 0 years, a price of $25, a position at the ideal spot and a Service Life of 23,000 hours.

The segment weighs the criteria at: Positioning 41%, Age 28%, Service Life 20% and Price 11%. You can convert these percentages into points, then use numbers to estimate a base score for your product. For example, price is worth eleven points. The perfect Round 0 price of S$25 would get eleven points, but at the opposite end of the price range, a price of S$45 would get one point.

However, the base score can fall because of poor awareness (promotion), accessibility (place) or the credit terms you extend to your customers.

BONDS

All bonds are 10-year notes. Your company pays a 5% brokerage fee for issuing bonds. The first three digits of the bond series number reflects the interest rate. The last four digits indicates the year the bond is due. The numbers are separated by the letter S, which stands for "series." For example, a bond with the number 12.6S2017 has an interest rate of 12.6% and is due December 31, 2017.

Bond issues are used most often to fund long-term investments in capacity and automation.

Bondholders will lend total amounts up to 80% of the value of your plant and equipment (the Production Department's capacity and automation). Each bond issue pays a coupon, the annual interest payment, to investors. If the face amount or principal of bond 12.6S2017 were $1,000,000, then the holder of the bond would receive a payment of $126,000 every year for ten years. The holder would also receive the $1,000,000 principal at the end of the tenth year.

When issuing new bonds, the interest rate will be 1.4% over the current debt interest rates. If your current debt interest rate is 12.1%, then the bond rate will be 13.5%.

You can buy back outstanding bonds before their due date. A 1.5% brokerage fee applies. These bonds

GLOSSARY

are repurchased at their market value, or street price, on January 1 of the current year. The street price is determined by the amount of interest the bond pays and your credit worthiness. It is therefore different from the face amount of the bond.

If you buy back bonds with a street price that is less than its face amount, you make a gain on the repurchase. This will be reflected as a negative write-off on the income statement

Bonds are retired in the order they were issued. The oldest bonds retire first. There are no brokerage fees for bonds that are allowed to mature to their due date.

If a bond remains on December 31 of the year it becomes due, your banker lends you current debt to pay off the bond principal. This, in effect, converts the bond to current debt. This amount is combined with any other current debt due at the beginning of the next year.

BOND DUE DATE

Assume the face amount of bond 12.6S2017 is $1,000,000. The $1,000,000 repayment is acknowledged in your reports and spreadsheets in the following manner: Your annual reports from December 31, 2017 would reflect an increase in current debt of $1,000,000 offset by a decrease in long term debt of $1,000,000. The 2017 spreadsheet will list the bond because you are making decisions on January 1, 2017, when the bond still exists. Your 2018 spreadsheet would show a $1,000,000 increase in current debt and the bond no longer appears.

BOND RATINGS

Each year your company is given a credit rating that ranges from AAA (best) to D (worst). In GlobalDNA, ratings are evaluated by comparing current debt interest rates with the prime rate. If your company has no debt at all, your company is awarded an AAA bond rating. As your debt-to-assets ratio increases, your current debt interest rates increase. Your bond rating slips one category for each additional 0.5% in current debt int erest. For example, if the prime rate is 10% and your current debt interest rate is 10.5%, then you would be given an AA bond rating instead of an AAA rating.

BUYING CRITERIA AND THE CUSTOMER SATISFACTION SCORE

The customer satisfaction survey starts by evaluating each product against the buying criteria. Next, these assessments are weighted by the criteria’s level of importance. For example, the performance segment considers product age and specs very important, while

GLOSSARY

the budget segment concentrates primarily on price. A well-positioned product in a segment where positioning is important will have a greater overall impact on its survey score than a well-positioned product in a segment where positioning is not important.

A perfect customer satisfaction score of 100 requires that the product:

- Be positioned at the ideal spot (the segment drifts each month, so this can occur only one month per year);
- Be priced at the bottom of the expected range;
- Have the ideal age for that segment;
- Have a Service Life specification at the top of the expected range.

The customer satisfaction score drives demand for your product. Your demand in any given month is your score divided by the sum of the scores. For example, if your product's score in April is 20 and your competitors' scores are 27, 19, 21 and 3, then your product's April demand is:

20 / (20+27+19+21+3) = 22%

Assuming you had enough inventory to meet demand, you would receive 22% of segment sales for April.

What generates the score itself? Marketers speak of "the 4 P's"– price, product, promotion and place. Price and product are found in the buying criteria.

Together they present a price-value relationship. Your promotion budget builds "Awareness," the number of customers who know about your product before purchasing. Your sales budget (place) builds "Accessibility," the ease with which customers can find and purchase your product. To the 4 P's we can add two additional elements – credit terms and availability. Credit terms are expressed by your accounts receivable (A/R) policy. Availability addresses inventory shortages. These are all considered to be part of the Customer Satisfaction Score.

CREDIT POLICY (ACCOUNTS RECEIVABLE AND ACCOUNTS PAYABLE)

Your company determines the number of days between transactions and payments. For example, your company could give customers 30 days to pay their bills (accounts receivable) while holding up payment to suppliers for 60 days (accounts payable).

Shortening A/R (accounts receivable) lag from 30 to 15 days in effect recovers a loan made to customers. Similarly, extending the A/P (accounts payable) lag from 30 to 45 days extracts a loan from your suppliers.

GLOSSARY

The accounts receivable lag impacts the customer satisfaction score. At 90 days there is no reduction to the base score. At 60 days the score is reduced 0.7%. At 30 days the score is reduced 7%. Offering no credit terms (0 days) reduces the score by 40%.

The accounts payable lag has implications for production. Suppliers become concerned as the lag grows and they start to withhold material for production. At 30 days, they withhold 1%. At 60 days, they withhold 8%. At 90 days, they withhold 26%. At 120 days, they withhold 63%. At 150 days, they withhold all material. Withholding material creates shortages on the assembly line. As a result, workers stand idle and per-unit labor costs rise.

CURRENT DEBT

Your bank issues current debt in one-year notes. The Finance page in your interface displays the amount of current debt due from the previous year. Last year's current debt is always paid off on January 1. The company can "roll" that debt by simply borrowing the same amount again. There are no brokerage fees for current debt. Interest rates are a function of your debt level. The more debt you have relative to your assets, the greater risk you present to debt holders and the higher the current debt rates.

As a general rule, companies fund short term assets like accounts receivable and inventory with current debt offered by banks.

Bankers will loan current debt up to about 75% of your accounts receivable (found on last year's balance sheet) and 50% of this year's inventory. They estimate your inventory for the upcoming year by examining last year's income statement. Bankers assume your worst-case scenario will leave three- to four-months in inventory and they will loan you up to 50% of that amount. This works out to be about 15% of the combined value of last year's total direct labor and total direct material, which is displayed on the income statement.

Bankers also realize your company is growing, so as a final step bankers increase your borrowing limit by 20% to provide you with room for expansion in inventory and accounts receivable.

EMERGENCY LOANS

Financial transactions are carried on throughout the year directly from your cash account. If you manage your cash position poorly and run out of cash, the simulation will give you an emergency loan to cover the shortfall. The loan comes from a gentleman named Big Al – a loan shark who charges very high interest rates. Big Al lends you the exact amount of your shortfall. You pay one

GLOSSARY

year's worth of current debt interest on the loan and Big Al adds a 7.5% penalty fee on top to make it worth his while.

For example, suppose the current debt interest rate is 10% and you are short $10,000,000 on December 31. You pay one year's worth of interest on the $10,000,000 ($1,000,000) plus an additional 7.5% or $750,000 penalty.

You do not need to do anything special to repay an emergency loan. However, you need to decide what to do with the current debt (pay it off, re-borrow it, etc.). The interest penalty only applies to the year in which the emergency loan is taken, not to future years.

Emergency loans are combined with any current debt from last year. The total amount displays in the Due This Year cell under Current Debt.

Emergency loans depress stock prices, even when you are profitable. Stockholders take a dim view of your management performance when they witness a liquidity crisis.

For most companies, Excess Working Capital will be zero.

EXCESS WORKING CAPITAL

Excess working capital is calculated as follows: Working Capital = Current Assets - Current Liabilities, 90 Days of Sales = 90/365 Sales, Excess Working Capital = Working Capital - 90 Days of Sales

FINE CUT CIRCLE

The solid inner circle defines the heart of the segment. Customers prefer products within this circle. We call the inner circle the fine cut because products within it "make the fine cut." Fine cut circles have a radius of 2.5 units.

IDEAL SPOT

The ideal spot is that point in the heart of the segment where, all other things being equal, demand is highest.

MAX INVEST

Max Invest is the maximum dollar amount you can invest in your production plant in a given year. This number is calculated depending on your capital budget limit.

The capital budget limit is determined by the maximum amount that can be raised through stock and bond issues plus excess working capital, minus the total amount of stock dividends to be paid in the current year.

GLOSSARY

POSITIONING FINE CUT

Products inside the fine cut are within 2.5 units of the center of the circle.

A product's positioning score changes each month because segments and ideal spots drift a little each month. Placing a product in the path of the ideal spot will return the greatest benefit through the course of a year.

POSITIONING ROUGH CUT

Products placed in the rough-cut area are between 2.5 and 4.0 units from the center of the circle. Products here are poorly positioned and receive lower customer satisfaction scores. The farther they are from the fine cut circle, the lower the score. Just beyond the fine cut, scores drop 1%. Halfway across the rough cut, scores drop 50%. Scores drop 99% for products that are almost to the edge of the rough cut.

POSITIONING SCORE

The Marketing department must understand both what customers want and their boundaries. In terms of a product's Accuracy and Speed, the Perceptual Map illustrates these ideas with circles. Each segment is described with a dashed outer circle (rough cut), a solid inner circle (fine cut) and a dot we call the ideal spot.

PRICE FINE CUT

Within each segment's price range, price scores follow a classic economic demand curve; as price goes down, the price score goes up.

PRICE ROUGH CUT

Devices priced $10.00 above or below the segment guidelines will not be considered for purchase. Those products fail the price rough cut.

Devices priced $1.00 above or below the segment guidelines lose about 10% of their customer satisfaction score. Devices continue to lose approximately 10% of their customer satisfaction score for each dollar above or below the guideline up to $9.99, where the score is reduced by approximately 99%. At $10.00 above the range, demand for the product is zero.

PRICE SCORE

Every segment has a $20.00 price range. Customers prefer products priced towards the bottom of the range. Price ranges in all segments drop $0.50 per year.

Segment price expectations correlate with the segment's position on the Perceptual Map. Segments that demand faster, more accurate genetic diagnostic test devices are willing to pay higher prices.

GLOSSARY

PROFIT SHARING

Your company shares 2% of Net Profit by region with your employees. You can view your total profits shared with your employees on pages 3 and 4 of the Globe.

RETIRING BONDS EARLY

A bond with a face amount of $10,000,000 could cost $11,000,000 to repurchase because of fluctuations in interest rates and your credit worthiness. A 1.5% brokerage fee applies. The difference between the face value and the repurchase price will reflect as a gain or loss in the income statement's fees and write-offs.

ROUGH CUT CIRCLE

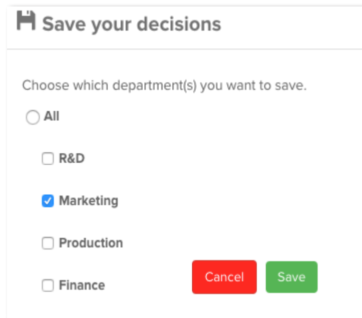
The dashed outer circle defines the outer limit of the segment. Customers are saying, "I will NOT purchase a product outside this boundary." We call the dashed circle the rough-cut boundary because any product outside of it "fails the rough cut" and is dropped from consideration. Rough-cut circles have a radius of 4.0 units.

SAVING & COLLABORATING

In GlobalDNA you will have the opportunity to experiment with different business decisions and assess their effectiveness before you commit to them. While your decisions are saved as a personal draft automatically, to submit your file or share with teammates, you must click the Save button (1) and select the departments you want to save to your company file (2). Any time you save to the company file you will overwrite the existing decisions for that department (3). You can go back and update the company file as many times as you'd like before the round ends, but you must save your decisions to the company file for them to be used when the round processes (4).

①

②



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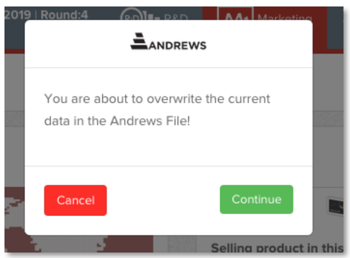

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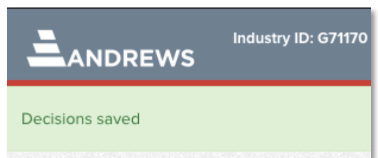
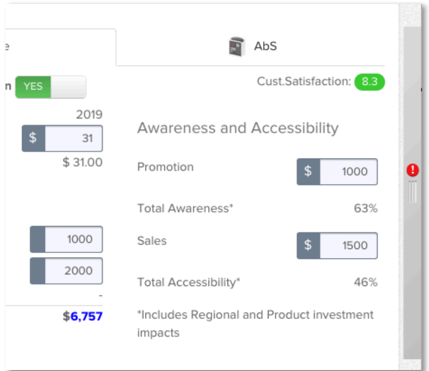


GLOSSARY

SAVING — UPDATING YOUR DRAFT

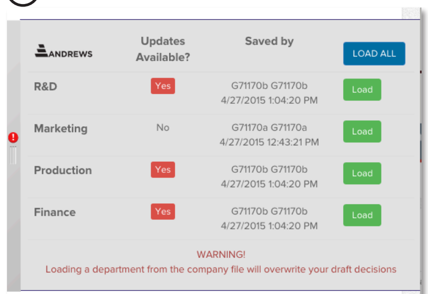
If you're part of a team, saving your file will alert your colleagues in the form of a notification through the pullout box on the right of the screen (1). You will receive the same notification if a team member updates the file with their decisions. Opening this box will allow the team to download any decisions from the company file and overwrite the department data in their current file (2).

①



A red icon will appear on the update drawer bar. Click to open.

②



Click 'Load' to update your draft with that departments team decisions.

GLOSSARY

SEGMENT MOVEMENT

Each segment moves across the Perceptual Map a little each month. In a perfect world, R&D would use iterative design to position your product in front of the ideal spot as many times as possible throughout the year.

SERVICE LIFE FINE CUT

Within the segment's Service Life range, the customer satisfaction score improves as Service Life increases. However, material costs increase $0.30 for every additional 1,000 hours of Service Life. Customers ignore Service Life above the expected range – demand plateaus at the top of the range.

SERVICE LIFE ROUGH CUT

Demand scores fall rapidly for products with Service Life hours beneath the segment's guidelines. Products with a Service Life of 1,000 hours below the segment guideline lose 20% of their customer satisfaction score. Products continue to lose approximately 20% of their customer satisfaction score for every 1,000 hours below the guideline down to 4,999 hours, where the customer satisfaction score is reduced by approximately 99%. At 5,000 hours below the range, demand for the product falls to zero.

SERVICE LIFE SCORE

Each segment has a range for Service Life. This is the number of hours a product is expected to operate before it malfunctions. Customers prefer products towards the top of the range.

STOCK

Stock issue transactions take place at the current market price. Your company pays a 5% brokerage fee for issuing stock. New stock issues are limited to 20% of your company's outstanding shares in that year.

As a general rule, stock issues are used to fund long-term investments in capacity and automation.

Stock price is driven by book value, the last two years' earnings per share (EPS) and the last two years' annual dividend.

Book value is equity divided by shares outstanding. Equity equals the common stock and retained earnings values listed on the balance sheet.
Shares outstanding is the number of shares that have been issued. For example, if equity is $50,000,000 and there are 2,000,000 shares outstanding, book value is $25.00 per share.

GLOSSARY

EPS is calculated by dividing net profit by shares outstanding.

The dividend is the amount of money paid per share to stockholders each year. Stockholders do not respond to dividends beyond the EPS; they consider them unsustainable. For example, if your EPS is $1.50 per share and your dividend is $2.00 per share, stockholders would ignore anything above $1.50 per share as a driver of stock price. In general, dividends have little effect upon stock price. However, GlobalDNA is unlike the real world in one important aspect – there are no external investment opportunities. If you cannot use profits to grow the company, idle assets will accumulate. GlobalDNA is designed such that in later rounds your company is likely to become a cash cow, spinning off excess cash. How you manage that spin-off is an important consideration in the endgame, and dividends are an important tool at your disposal.

You can retire stock. The amount cannot exceed the lesser of either:

- 5% of your outstanding shares, listed on page 2 of last year's Globe; or
- Your total equity listed in last year's Globe. You are charged a 1.5% brokerage fee to retire stock.

STOCK OUTS AND SELLER'S MARKET

What happens when a product generates high demand but runs out of inventory ("stocks out")? The company loses sales as customers turn to its competitors.
This can happen in any month. Below are some possible scenarios in which demand outstrips supply.

1. After completing a capacity analysis, a company decides that industry demand exceeds supply. They price their product $9.99 above last round's published price range, forgetting that price ranges fall by $0.50 each round. Demand for the product becomes zero. They should have priced $9.49 above last year's range

2. A company disregards a competitor's product that is in the positioning rough cut. These products normally can be ignored because they have low customer satisfaction scores. However, when the company increases the price of its own product, its customer satisfaction score falls below that of the competitor's product in the rough cut which suddenly becomes more attractive for buyers.

GLOSSARY

3. The company fails to add capacity for that round. A seller's market sometimes appears because a competitor unexpectedly exits a segment. This creates a windfall opportunity for the remaining companies. (However, a well-run company will always have enough capacity to meet demand from its customers.)

How can you be sure of a seller's market? You can't, unless you are certain that industry capacity, including outsourcing, cannot meet demand for the segment. In that case, even very poor products will stock out as customers search for anything that will meet their needs.

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