

SAMSUNG BUSINESS SIMULATION

# WINNINGSTRAT

BY STRATX

## PARTICIPANT HANDBOOK

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# I. INTRODUCTION TO THE SIMULATION CHALLENGE

Welcome to WinningStrat and congratulations on your new position!

You and the other members of your team have just been recruited by a large corporation to manage the marketing department of one of its divisions. Coming from a different industry, your team has no experience in the WinningStrat world. You will compete with several other firms to market two types of durable goods to consumers.

## 1. Understand your role

During this exercise, you will be responsible for formulating and implementing the long-term marketing strategy of your division. You will have to decide the overall direction of the company regarding:

- The *product portfolio strategy* – which products the company will develop and market;
- The *segmentation and positioning strategy* – which market segments will be targeted and how products will be positioned;
- The *marketing mix strategy* – the day-to-day operational marketing decisions such as pricing, production, communication and distribution.

In particular, you and your team members will have to:

- Work in a highly competitive market;
- Target selected consumer segments and position your products;
- Interface with the R&D department to design and develop new products;
- Prepare the launch of new products, improve, maintain or withdraw existing ones;
- Interface with the production department to specify production planning;
- Make marketing mix decisions (pricing, advertising, ...) and Digital Marketing Decisions for each of your products;
- Decide on the size and priorities of your commercial team;
- Launch Marketing Initiatives at the company level to reinforce your performance
- Order market research studies to get up-to-date information for decision making.

## 2. Your objective

Your objective over the next years is to maximize the Share Price Index (SPI) of your division. The SPI takes into account several indicators including net contribution generated, product market share, your ability to grow the organization's revenues and the quality of projects successfully completed.

## II. OVERVIEW OF THE SIMULATED WORLD

The WinnigStrat world is a fictitious industrialized country of 80 million inhabitants whose monetary unit is the Simulation dollar (\$). This world does not intend to represent any country, market or industrial sector. However, it roughly behaves like most markets, and the general management and marketing knowledge that you have acquired through business experience or formal education applies to this new world.

In the Simulation world, both inflation and GNP growth is fairly stable, and no major political, social or economic event is anticipated in the near future. There are a handful of competing companies that manufacture and market consumer durable goods. These goods are comparable to electronic products such as digital cameras, GPS systems, mobile phones or computers, as well as office equipment, cars, books, or any other consumer durable goods.

Initially, the competing companies are identified by a unique letter such as M, S, L or H. Your first task will be to give a name to your company, starting with this letter and reflecting the spirit within your team.

Each firm starts in a different situation in terms of product specification, target consumers, product awareness levels, market share, distribution coverage, profitability, R&D expertise, etc. Consequently, the marketing strategy of each firm should be adapted to its particular situation within the industry.

Nevertheless, no firm has a relative advantage over the others and initially many characteristics are common to all firms. For instance, the initial product portfolio of all companies is comprised of two products. Each firm will have the opportunity to design and develop new R&D projects and to introduce new products or new models of existing products. All R&D departments have the same capabilities to develop new projects, in their range of experience. Similarly, all commercial teams are equally qualified to handle distributor relationships.

### 1. Sonite Products

At the beginning of the simulation, all rival firms market two *Sonite* products. Sonite products have existed for several years and the market has grown quite consistently since the introduction of the first Sonite product. It is now a well-established market, with several strong products at different price points covering a wide range of needs. Analysts believe that the Sonite market will continue to grow over the next five years.

A Sonite is a complex piece of equipment made up of several components. Although they can be evaluated along more than fifty attributes, Sonite products are primarily differentiated in terms of five physical characteristics that are considered as the most important ones by industry experts. These characteristics are described below, and additional details are given in Figure 1

- **Processing Power.** This characteristic measures the speed of the internal processor. High processing power is critical for applications using extensive graphics or doing a lot of calculations. It also drives the ability of the Sonite product to process multiple tasks simultaneously. Processing power is given in gigaflops (billions of floating point operations per second), a standard and respected measure that takes several factors into account: number of “cores”, internal memory size, frequency, etc.
- **Display Size.** This is the size of the screen, in inches. This characteristic drives the ability of the Sonite product to display higher quality images or videos, or to display more information to the user at a given time.
- **Design Index.** This characteristic does not relate to the product esthetic but to the type of raw materials used (wood, plastic, metal ...), to the number of components (all-in-one type versus multiple-component type), to the aspect of its various components (position, size ...). Therefore, a product rated 8 on the design scale is not better or easier-to-use than one rated 4 on the same scale.
- **Battery Life.** This is the number of hours during which the Sonite product can operate without being connected to the main power.
- **Features.** This is the total number of features offered by the Sonite product. These features can be hardware related, such as the ability to connect various devices to your Sonite product, or software related. There are a minimum number of core features that each Sonite product must offer. Additional ones are nice to have that may be of interest to some consumers.

It is important to understand that offering *more* of a certain characteristic is not necessarily *better*. For instance, high processing power processors may require a sophisticated cooling system that has an impact on weight, volume and noise. Consumers who do not need high power will certainly choose a less powerful Sonite that will be relatively small, light and quiet. Similarly, large screens may be highly attractive to some users, but not to others because of their higher weight and heavier power consumption. Similar advantages and drawbacks exist for most characteristics: long duration batteries are bulky and heavy; product with lots of features may be difficult to use and may confuse new or occasional users; etc.

The *base cost* is also an important factor; this is the cost at which each unit will be produced, based on an initial production batch of 100,000 units. The base cost is decided jointly by the Marketing department – which is mainly concerned with margin and profitability– and by the R&D department –which is mainly concerned with product feasibility.

Characteristic	Abbreviation	Unit	Range
Processing Power	Power	Gigaflops (GFLOPS)	5 – 100
Display Size	Display	Inches (")	4 – 40
Design	Design	Index	3 – 10
Battery Life	Battery	Hours (H)	24 – 96
Number of Features	Features	Number (#)	5 – 20
Base Unit Cost	Base Cost	\$	25+

Figure 1 – Sonite main physical characteristics

## 2. Vodite Products

Recently, there has been industry speculation that a new type of electronic product might emerge, the *Vodite*. Although no Vodite products are available at the start of the simulation, industry experts have a pretty good idea of what future Vodite products might resemble.

Vodite products will satisfy entirely different needs from that of Sonite products so that demand for the two products will be completely independent. They will not be complementary in any way and there will not be any substitution from one to the other. It is anticipated that the Vodite market will be quite attractive if the right products are made available at the right price.

The expertise required of potential suppliers is similar for both markets in terms of technology, manufacturing, marketing and distribution. Therefore, your division and your competitors are the most likely suppliers of Vodites. Although the Sonite and Vodite technologies are similar, all firms will have to engage substantial R&D resources to develop their first Vodite product. Recent calculations suggest that an investment of 5 to 10 million dollars may be required for each Vodite.

Experts agree that Vodite products will primarily be differentiated in terms of the five most important physical characteristics described below. Additional details are given in Figure 2.

- **Resolution.** This characteristic relates to the sharpness or clarity of the images processed by the Vodite product. A higher level of details can be observed and processed with high resolution products. Resolution should not be confused with definition, which is the total size of the image. Resolution is usually expressed in lines per millimeter (LPM), from 20 to 100.
- **Energy Efficiency.** This characteristic, sometimes called *efficient energy use*, is about using less energy to provide the same level of performance and convenience. The higher the energy efficiency the less electricity is used. Energy efficiency is usually improved with more efficient technologies such as smaller gates and lower frequency in microcircuits. This characteristic is measured in billion computations per watt-hour (bC/Wh).
- **Carbon Footprint.** This characteristic is also referred to as greenhouse gas emission. It weights the carbon impact of the product through its lifecycle: manufacturing, transportation, use, recycling and/or discarding. It is measured in kilograms of CO<sub>2</sub> released in the atmosphere.

Depending on the scenario selected by your instructor, a “greenhouse gas emission” tax may be put in place by the Simulation government. In this case, you will be notified one or two years in advance of the amount that you will have to pay if you market a Vodite product with a Carbon Footprint level above a certain threshold value (in kilograms of CO<sub>2</sub>). This tax will appear as an exceptional cost, proportional to the kilograms of CO<sub>2</sub> emitted by your product above the threshold value. This tax has a fixed amount and will not depend on your volume sales.

- **Connectivity.** This characteristic measures the ability of the product to connect to varying networks and/or databases as well as the speed of the connection. Connectivity is measured by an index between 3 and 10. Higher connectivity indices guarantee that the product will be able to connect to a network in almost any situation and to exchange data at a fast pace.
- **Application programs or Apps.** This is the number of application programs that can be set up and used with the Vodite product. Applications allow user to customize the product and to adapt it to their own needs. Although there are only a handful of basic applications that each Vodite product must offer, some products offer a very large catalog.

Characteristic	Abbreviation	Unit	Range
Resolution	Resolution	Lines per Millimeter (L/mm)	20 – 100
Energy Efficiency	Energy	billion computations per watt-hour (bC/Wh)	10 – 100
Carbon Footprint	Carbon	Kilogram (Kg)	5 – 50
Connectivity	Connect	Index	3 – 10
Application Programs	Apps	Number (#)	5 – 100
Base Unit Cost	Base Cost	\$	30+

Figure 2 – Vodite main physical characteristics

### 3. Naming Conventions

Product names are made up of up to six characters. The first letter identifies the firm marketing the product (M, S, L or H). The second letter must be an 'O' for a Sonite or an 'E' for a Vodite. The other characters can be letters or numbers and can be freely chosen by each firm to generate different product names.

For instance, products SOFT and SOLO would be Sonites marketed by firm SUPER, while MEGA and MEMO would be Vodites marketed by company MASTER. All new products must follow these conventions and must have different names. The selected name has no influence on the market response to the product.

### 4. Sonite Customers

Sonite customers are adults who purchase the products for personal or professional use. Market research studies show that the Sonite market can be divided into five major groups of customers or segments, having similar needs and purchasing behavior.

- **Tech Enthusiasts** – People in this segment show a high level of interest in Sonites and other similar products. They are extremely knowledgeable about Sonite technology and the different characteristics of the existing products. Tech Enthusiasts were probably among the first to use Sonite products. They are looking for high quality, high-performance and easy-to-use products. They can afford expensive products and often view price as an indication of quality.
- **Baby Boomers** – Retired adults (born between 1943-1959). They are not extremely knowledgeable about Sonite technology and the different characteristics. They are used to buy their Sonite product in specialty stores where they can find good advice and recommendation. They demand quite good performing products, i.e. products with good processing power and/or large screens. They are less concerned with the convenience of the products (battery life, design or number of features) however they are quite price-sensitive, since they use Sonite products for their personal use, and do not necessarily have high incomes.

- **Gen-X** – Older adults (40+). Currently the largest segment, though forecast growth is low. Gen-X consumers are becoming more mainstream as they get older. Television is their main window on the world followed by printed media, though they also use internet and e-mail extensively. Premium products are preferred, price may be seen as an indicator of quality.
- **Millennials** – Young adults in their 20's & 30's, Millennials are close to being the largest segment now, with analysts predicting significant growth over coming years as they aim to fit more into their busy lives. They are also less product loyal and look out for bargains. Millennials are tech-dependent (not just tech-savvy) and typically use mobile and social media throughout the day every day! They have a good knowledge of marketed products and do extensive product comparison. They look for products with a high quality – price ratio and average levels of both performance and convenience. They use Sonite products for personal purposes and are quite price-sensitive.
- **Gen-Z** – Younger consumers, big Sonites user. Gen-Z have grown up with the internet and most forms of digital media. They know about the technology, are skeptical about advertising and privacy, and have short attention spans so are best reached via multiple channels; for example, by using sponsorship and print to complement a social or mobile campaign. As they are younger consumers price is an important factor in their purchase decision, though they also value some Performance and Convenience.

Each segment has specific needs in terms of physical characteristics and price. Awareness levels and purchase intentions vary significantly for existing products from one group to the other. Market forecast studies show that the sizes and growth rates of the five segments are significantly different. This is explained in part by the development stage of each segment, by the varying product offerings, and by the intensity of marketing effort targeted at each segment.

## 5. Vodite Customers

While potential consumers for Vodites are the same individuals as those who buy Sonites, a different segmentation strategy is likely to be appropriate for Vodites. Further studies need to be completed, but marketing experts believe that it will be more effective to group consumers according to how they adopt new products. In this light, three groups are examined for Vodites:

- **Innovators** – These consumers will be the first users of Vodite products. People in this segment tend to be adventurous and are willing to try new ideas with some risk. Although this segment will probably be the largest one initially, it represents only a small percentage of total potential consumers. Innovators demonstrate both a high desire for and interest in Vodite products. Their income levels are above average.
- **Early adopters** – Consumers in this segment will not adopt Vodite products as quickly as innovators but will certainly do so before a majority of people have accepted the new technology. As this group is usually much larger than the previous one, its influence on other consumers is fairly high. Early adopters tend to be opinion leaders and helpful in 'advertising' the new product to other potential buyers. They are critical to the adoption process and should not be neglected by marketers. They have an average income level.
- **Followers** - These individuals represent the bulk of potential consumers. Because they perceive more risk in buying new products, they adopt a product innovation only after a large number of consumers have tried it. Innovators and early adopters particularly influence followers. Their income level is usually below average.

## 6. Distribution Channels

Sonite and Vodite consumers tend to shop in the following four distribution channels:

- **Specialty Stores** – These stores are usually small and may not necessarily belong to organized chains. They are geographically close to their customers and can provide a high level of service and technical support. As they do not distribute many different product categories, Sonite products account for a large proportion of their sales. These stores usually carry a broad product line for each category, including the most expensive and/or high-performance products. Because of their high level of technological expertise, specialty stores are likely to be the preferred distribution channel for Vodite products.

- **Mass Merchandisers** – These stores operate on a low-price, high-volume basis and try to minimize overhead. Consequently, the level of service they offer is lower than that of the two other channels. While mass merchandisers carry many different product categories, the depth of each product line they carry is usually restricted to a few units. They often distribute the cheaper, low-performance products. Their lack of technical expertise and the low level of service may well prevent them from distributing Vodites in the early years.
- **eCommerce** – This category of stores includes the web-only merchants (such as amazon.com and newegg.com) as well as the e-commerce websites of traditional retailers (BestBuy.com, Walmart.com, etc.). An important proportion of Sonites sales are done through eCommerce stores, especially for highly connected consumers such as Millennials. Convenience is their key advantage as consumers may shop from their home at the time of their choice. In addition, consumers have access to an almost unlimited choice and can compare features and prices very easily. eCommerce is likely to become more important in the next 5 to 10 years.
- **eStore** – Each firm has already developed their own eStore to sell directly to the customer. eStores can generate more profits to companies than external distribution as the unit margin is more interesting. However, customers may find that prices are higher than in channels operating discounts.

Within the Sonite market, market research studies show that all distribution channels are important; therefore, each of them should be visited by the companies' commercial team. There are approximately 10,000 specialty stores, 6,000 mass merchandisers belonging to 6 different chains, 1,000 eCommerce stores, and 1 eStore per firm present on the market.

Differences between margins obtained by the external stores in each of the three channels are mainly due to differences in the level of service and volume sold. These margins are applied to retail prices and are approximately constant across products for a given channel. In the simulation, the distributor margins are 40% for specialty stores and 30% for the other ones.

## 7. Media Categories

Sonite and Vodite consumers may be reached through the following media categories:

- **Traditional Media** – Traditional media is any form of mass communication available before the advent of digital media. This includes television, radio, newspapers, books, and magazines.
- **Outdoor Media** – Outdoor media is all media that reaches consumers when they are outside their homes. Common forms of outdoor advertising today fall into three categories: Billboards, Public Transport, Sponsored Events.
- **Digital Owned** – This is media owned and controlled by the product. This includes company's web site, mobile apps, blogs and their social presence (Facebook, LinkedIn, Twitter, etc.).
- **Digital Paid**: Paid media is bought by the company to build its position, usually display ads, paid search or sponsorship. Ideally this investment feeds 'owned' and creates 'earned' media.
- **Digital Earned** – Earned media is essentially online word of mouth, usually seen in the form of 'viral', mentions, shares, reposts, reviews, recommendations, or content picked up by 3rd party sites.

Segments have different media habits, and each media has a different Return on Marketing Investment.

## 8. Economic Environment

You operate in an economy that currently has an average inflation rate of 2%. Inflation affects the production, advertising, commercial and market research costs of your company. It is unlikely that inflation will reach much higher levels in the future. Should this be the case, the government may decide to impose price control on all products.

The Gross National Product (GNP) provides you with information about trends in the Simulation economy. In the recent past, the overall economy has been growing at a rate of 4%.

# III. MANAGING YOUR FIRM

This chapter describes how your company operates as well as the decisions you will have to make each period. Before making dramatic changes, you should try to get a feel for the behavior of the market. Do not jump hastily to conclusions and bear in mind that obvious solutions may be based upon an incomplete analysis. To reach more robust decisions, use the information from your company results, from the market news and from market research studies to analyze your situation and past competitive behavior. These reports are described in the chapter entitled Understanding Your Annual Report.

You will manage the Marketing department as a profit center. We will see in the next paragraphs that most of your decisions will cost you money: advertising budgets, commercial team expenditures, R&D expenses, etc. We will recap these costs at the end of the chapter and we will explain where your money comes from.

## 1. Decision rounds

You will follow a decision-making cycle that will repeat itself for each simulated year, for instance 8 years in total. This cycle is called a *decision round* or a *round*. A simulated year is also called a *period*.

- a. At the beginning of each round, the instructor will provide you with your results for the previous year (sales, R&D, production,) together with additional information on the market and your competitors. In the first year, you and your team should begin analyzing this information and then start formulating a strategy for your company and agree on objectives. In the subsequent years, you should appraise your results, check if you have met your objectives and possibly review your initial strategy and decide on what changes should or should not be made.
- b. The previous step will lead to a series of decisions, which will be input into the decision forms provided. Decisions can be modified and refined throughout the decision round, until the time is over.
- c. At the end of the round, the instructor collects and audits the decisions of all teams. If everything looks fine, the instructor runs the Simulation mathematical model to simulate the round and produce new results. At this stage, you are ready to start a new round.

## 2. Product, Product and Base Project

Each of your Sonite and Vodite products is sold to consumers under a *product name* such as MOST, SOFT, LONE or HOPE. The physical characteristics and the unit production cost of the product are defined by its *base R&D project*, i.e. the project that was conducted by your R&D department to develop the first prototype of the product. R&D projects are given a name when they are initiated; project names start with the letter 'P'.

Initially, each firm markets two Sonite products, for instance MOST and MOVE, each one being characterized by its base project, for instance POMOST and POMOVE.

Over the course of the simulation, you will be able to launch new models of your products to adapt to changing consumer needs or to competitive moves, and launch new ones to target new consumer segments or to explore new markets. Chapter VI provides you with more information on situations where product upgrade models or product launches are necessary.

## 3. Production

Each period, you must submit a production plan for each of your marketed products, i.e. you must specify how many units you want to produce for the period. This decision must take into account the potential sales for the product, the existing inventory at the beginning of the period and the flexibility of the Production department.

The Production department of your company is working for several divisions. It can thus be viewed as a highly flexible external supplier. Consequently, you are not concerned about manufacturing investments, fixed costs or capacity utilization.

From one period to the next, you are completely free to increase or decrease the production plan of a given product, without any penalty. The Production department will always manufacture the required quantities in the best possible conditions.

Moreover, the actual production level for each product is automatically adjusted in response to actual demand for that product in the period, within 20% of your initial production plan. Hence, if you did not order enough units to cover the demand, the production will be automatically increased by up to 20%. On the contrary, if you ordered too many units and cannot sell them in the period, the production will be automatically reduced by up to 20%. In case your production plan was inaccurate by more than 20%, you will either lose sales or build inventory.

Figure 3 gives a few examples of varying situations of inventory, production plan and market demand (all numbers are in units).

		Case A	Case B	Case C	Case D
Potential sales	(a)	154 000	154 000	154 000	154 000
Beginning inventory	(b)	20 000	20 000	20 000	None
<b>Production plan (your decision)</b>	<b>(c)</b>	<b>150 000</b>	<b>100 000</b>	<b>200 000</b>	<b>200 000</b>
Actual production (automatic adjustment)	(d)	134 000 <i>Reduced to (a) - (b)</i>	120 000 <i>Increased to (c) + 20%</i>	160 000 <i>Reduced to (c) - 20%</i>	160 000 <i>Reduced to (c) - 20%</i>
Actual sales	(e)	154 000 <i>= (a) = (d) + (b)</i>	140 000 <i>= (d) + (b)</i>	154 000 <i>= (a)</i>	154 000 <i>= (a)</i>
Lost sales <i>Equal to (a) - (e)</i>	(f)	None	14 000	None	None
Ending inventory <i>Equal to (b) + (d) - (e)</i>	(g)	None	None	26 000	6 000

Figure 3 – Inventory and production plan versus market demand

The flexibility of the Production department goes beyond automatic adjustment of production plans. The units produced are charged to the Marketing department only when they are shipped to distributors to be sold to consumers. The price paid by Marketing to Production is called the *transfer cost*; it incorporates all costs associated with this high level of flexibility, including depreciation and fixed costs.

The transfer cost of a product is initially equal to the base cost of its base project, assuming that the first production batch is 100,000 units. The base cost is the unit cost that was decided when the project was developed by R&D. The transfer cost will then increase with inflation and decrease over time because of experience effects and economies of scale. As a rule of thumb, you can expect the transfer cost to be reduced by about 15% each time the cumulative production of a given product is doubled. If the first production batch is lower than 100,000 units, then the transfer cost will be higher than the project base cost. For instance, if the initial production is 50,000 units, the cost will be 15% higher.

Units produced in excess are kept in inventory, and inventory-holding costs are charged to the Marketing department until these units are sold. Inventory costs per unit are calculated as a percentage of the transfer cost. This information can be found in the Newsletter.

Production plans must be entered each period in the Marketing Mix decision form. These decisions should be based on your sales forecasts for the upcoming period and should take into account any units left in inventory. If you are holding a high level of inventory, you can set the production plan to 0 but in this case, no automatic adjustment is possible.

#### 4. Pricing

Each period, you must set the *recommended retail price* for each of your marketed products. The retail price is the list price for customers. The *average selling price* is the price at which you sell your product to distributors. It varies by distribution channel since different margins hold in each of the three external channels, as explained in the Distribution Channels section.

Specialty stores and eStores tend to respect the recommended retail prices set by companies. However, mass merchandisers and eCommerce stores use promotions or special offers to sell products. On average, these promotions are equivalent to a discount rate of 10% off the list price for mass merchandisers and 5% for eCommerce stores. Figure 4 provides a summary of prices, margins and discounts for a recommended Retail Price of \$400 and a unit transfer cost of \$123.

Dumping is strictly forbidden in the Simulation world; therefore, in all channels the recommended retail price must be set so that the selling price of a product is higher than its transfer cost.

Prices must be entered each period in the Marketing Mix decision form. Price increases or decreases greater than 30% in one period are highly discouraged as they often result in negative market reactions. On one hand, an excessive price increase is usually not accepted by consumers who may react strongly and stop purchasing the product. On the other hand, an excessive price decrease will result in a proportional cut in the distributors' margin and your commercial team may have a hard time finding distributors for the product. A message will warn you when such decisions are made. *If you ignore the warning, the recommended retail price will be automatically adjusted up or down to stop such adverse reactions.*

	Specialty Stores	Mass Merchandisers	eCommerce	eStore
Actual retail price	\$400	\$360	\$380	\$400
Distribution margin (operating cost for eStore)	40% – \$160	30% – \$108	30% – \$114	20% – \$80
Selling price	\$240	\$252	\$266	\$320
Transfer cost	\$123	\$123	\$123	\$123
Unit contribution	\$117	\$129	\$143	\$197

Figure 4 – From retail price to unit contribution

## 5. Advertising

Advertising decisions must be made each period for each of your marketed products. Indeed, the practice in the Simulation is to advertise on products rather than on company names. Consequently, even if your firm markets several products, possibly to the same consumer segment, these products will not benefit from the company's identity and image.

The primary objective of advertising is to build awareness for product names and to make consumer familiar with the characteristics and price of your product. Advertising is crucial for new products, but is also important for products that have been on the market for some years. Indeed, consumers tend to forget about a product in the absence of advertising.

Another objective of advertising is to develop demand for the whole market. Indeed, as potential consumers become more familiar with the products and their characteristics they are more likely to purchase one of them. The size and growth rate of consumer segments is influenced by the amount spent in advertising by the entire industry.

Finally, advertising will influence the decision of distributors to carry your products. Spending more in advertising will most likely increase your distribution coverage. It also creates a barrier to entry for your competitors.

### Advertising Budget

Advertising budgets must be entered each period in the Marketing Mix decision form. The advertising budget must be given in thousands of dollars.

The absolute amount of advertising spent on your products is a key factor in the success of your campaign. But because of the competitive nature of the Simulation industry, your advertising *share of voice* is important as well. The share of voice is calculated by dividing your own advertising budget (usually several million dollars

for a given product and period) by the industry total advertising budget. A share of voice greater than the ones of your direct competitors is required for a successful new product launch or for product repositioning.

### Communication Objectives

The communication objective allows to choose between different objectives depending your product situation:

- The “awareness” objective aims to raise awareness and the main advertising budget will be allocated to purchase media space.
- The “interest” objective aims to showcase your product characteristics and better product perception. To achieve this objective, a part of the advertising budget will be allocated to creating a good quality message.
- The “action” objective aims to give a reason to the consumer to buy your product and will take shape on the communication message or/and commercial deals.
- The “engagement” objective aims to increase your product loyalty and engagement and part of the advertising budget will be allocate raise your product loyalty and engagement.

You can choose two communication objectives, 60% of the budget will be allocated to the first objective, and 40% to the second.

### Segmentation strategy

You are also required to specify which segments should be targeted with your advertising. The percentages must add to 100%. This decision should be consistent with the marketing strategy of your firm and/or product. The advertising agency will select the most appropriate vehicle for the targeted segments (for instance, targeting Professionals through specific magazines, professional associations or on trade-shows). Because media selection is not an exact science, some consumers may be exposed to your advertising campaign even if you do not target them explicitly.

### Perceptual Objectives

Finally, you must define perceptual advertising objectives for each product. This enables you to convey a *perceptual message* and emphasize, for instance, that a given product is very powerful or that another one has a very large display and many features. You will learn more in the Repositioning section at the end of the handbook; it is devoted to product positioning through advertising and explains how to set perceptual objectives.

## 6. Digital Marketing

The digital marketing decision allows you to choose which media category will broadcast your advertising message. You will have to allocate efforts across Traditional and Digital Media for each product.

Information on previous years’ media consumption by each segment, and media Return on Marketing Investments (ROMI) experiments can be purchased in the Market Research Studies to guide you.

## 7. Marketing Initiatives

During the course of the simulation, participants will receive some suggestions of marketing initiatives to implement. These initiatives will run for one simulated period and each marketing initiative will have an impact on one or many stages of the purchase funnel.

These initiatives are grouped in different categories:

- Sponsoring / Foundation funding
- Promotions
- Partnerships
- Improve user experience
- Viral marketing initiative
- Product placement

- Influencer
- Additional services

We will list each initiative and its impact on the purchase funnel.

## 8. Sales Force & Commercial

Your commercial team is responsible for obtaining and entering orders and for supporting distributors. It is organized by channel to better meet the needs of the distributors, and by product. The team includes multiple categories of people and resources depending on the channels: sales representatives, customer support, merchandisers, web masters, blog managers, etc. The main tasks conducted by the commercial team are to visit stores, distributors and wholesalers; to enroll them in trade programs; to take orders; to handle out of stock situations; to participate in trade shows; and to help stores organize and conduct promotions.

- You must **specify the size of your commercial team (in Full-Time-Equivalent (FTE), i.e. the equivalent of one person working full-time for one period) to allocate to each traditional channel** and each product. Commercial people may be reallocated at no cost across distribution channels and/or across products. However, hiring or firing costs will be automatically charged to your department when the total size of the commercial team increases or decreases. They are calculated as a percentage of the FTE cost.

FTE costs include the salary and employee benefits of the person, as well as a sales budget that commercial people can use in activities or tools aimed at increasing sales, such as trade programs, catalogs, permanent or temporary POS materials, gifts, etc.

The commercial team will decide on the best mix of tools depending on the channel and the target consumers.

- **For digital channels, you must specify a commercial budget** in thousands of dollars, which will be used to buy key words and banners in the external online distributors' website (like Amazon, Alibaba, etc.) or for your owned eStore advertising and promotion.

## 9. Market Research Studies

One of your decisions will be to order market research studies. All studies are ordered at the beginning of a period and are conducted by a specialized research firm during that period. Hence, the information provided is relevant to the market situation during the analyzed period except for the Market Forecast study. The results are delivered with your annual report at the end of the period, and can be used for the next period's decisions.

Companies can buy 12 different types of studies, as shown in Figure 5. Studies deal with the Sonite and Vodite markets, consumers and channels. All studies are further detailed in section IV.3.

*Note: only six studies will be available in your Period 0 report:  
Consumer survey, Consumer panel, Distribution panel, Customer Centricity, Media Reporting and Market Forecast.*

Most of the studies apply only if there are products marketed during the period in the corresponding market. For instance, ordering the Consumer Panel study for the Vodite market is irrelevant if no Vodite products at all are marketed. If you order these studies and if no products were marketed in the period, you will not be charged for them. However, the corresponding cost is subtracted from your budget when you make your decisions. You can use the Benchmarking study to anticipate whether competition will launch new products.

Read section "Making Digital Marketing Decisions

This section focuses on how to use decision forms to split your advertising effort between the different media categories (Traditional X Digital). Visit sections II.7 learn more about media categories studies.

The percentages entered in the cells must sum to 100%.

- If the sum is higher than 100%, it will be normalized to 100% by the simulation model.
- If the sum is under 100%, you will lose part of your advertising budget.

" to review the Market Research decision form.

• Consumer survey	• Competitive Commercial team estimates
• Consumer panel	• Media reporting
• Customer centricity	• Industry benchmarking
• Distribution panel	• Advertising experiment
• Semantic scales	• Commercial team experiment
• Multidimensional scaling	• Market forecast
• Competitive advertising estimates	• Conjoint analysis

Figure 5 – Available market research studies

## 10. Research & Development

In the past, each firm has successfully completed two R&D projects on which the products marketed in Period 0 are based. The project name starts with the letters *PO* followed by the corresponding product name. For instance, the R&D project corresponding to the existing product *MOST* was called *POMOST*.

The Marketing department may ask the Research & Development department to develop new projects to either upgrade/downgrade existing products or to launch new ones. Indeed, existing products may need to be improved during their lifetime to adapt to the changing needs of consumers and new products may have to be created to target untapped segments in existing or new markets.

Chapter VI includes detailed information on R&D strategies and processes. The overview given below will show you how you can control the marketing strategy of your company and will give you the level of details necessary to understand the other chapters of this handbook.

When requesting a new R&D project, the Marketing department must specify the name of the project, the desired characteristics for the new or improved product, and the target base cost. The Marketing department must also allocate a budget to the project. Up to ten R&D projects may be ordered each period for the two markets, five Sonite projects and five Vodite projects.

### A. Project Name

Project names may have up to 8 characters. The first letter must be a 'P', as in "Project". The second one identifies the market of the product being developed: 'O' for a Sonite product and 'E' for a Vodite. The other characters may be chosen freely. We advise you to give meaningful names to your projects. For instance, *PO-MOVE2* would be a Sonite project developed to launch a new model of product *MOVE* and *PE-INNOV* would be a Vodite project developed to launch a new product targeted at Innovators.

The name of a completed project can never be reused for a new project, even if it is a minor modification of the older project.

### B. Project Characteristics

The physical characteristics of the project must be given along with the five most important attributes described in the sections "Sonite Products" and "Vodite Products". The values entered must within the feasible ranges and in the relevant unit; for instance, Battery Life should be between 24 and 96 hours.

Obviously, the Marketing Department should evaluate the attractiveness of various offerings before deciding on specific characteristics. The needs of the target consumers should be considered for this evaluation. There are multiple methodologies to determine the characteristics of a project; they are all discussed in chapter VI.

### C. Desired Base Cost

The *base cost* of a project is equal to the transfer cost that will be charged by Production to Marketing for each unit of the future product, assuming an initial production batch of 100,000 units. Note that the transfer cost will decrease if you produce more than 100,000 units, as explained in the "Productivity Gains" chapter.

You may ask the R&D department to develop the project at the lowest possible base cost also called *minimum base cost*. This cost depends on the project characteristics: the higher the level in each attribute (Processing Power, Display Size, etc.), the higher the minimum unit cost. There is one exception to this rule: unit cost will increase if you try to reduce the carbon footprint of your products. Developing a project at the minimum base cost will usually be quite expensive in term of the development budget. Indeed, the R&D team must not only develop the new characteristics requested, but also select materials and technologies that are compatible with the low-cost target.

You may also ask the R&D department to develop the project at a specified base cost, higher than the minimum cost. This will give more flexibility to the R&D team in the materials and technology selection, and is likely to reduce the development budget. Obviously, the desired base cost must be compatible with the expected product profitability, taking all factors into account: price, distributor margin, production costs, marketing and sales expenses, etc.

#### D. Project Allocated Budget

The Marketing department must allocate a budget to cover the project expenses. These expenses include the cost of developing the prototype and all the costs related to the transition from R&D to production, i.e. ensuring that large quantities of identical units can be economically and reliably produced.

At the early stage of the project development, the R&D team will estimate the budget required for completing the project. This budget will depend on how different the new characteristics are compared to the ones of projects already developed. Upgrading a Sonite product will initially cost between a few hundred thousand dollars and 2 million dollars. Industry experts believe that developing the first Vodite prototype will cost each firm a minimum of 5 million dollars. In both cases, R&D costs will decrease over time as more projects are successfully developed.

If the budget allocated by Marketing to the project is equal to or higher than the budget required for completion, then the project will be successfully completed and available during the following period.

As the R&D department works as a profit center, any budget allocated in excess of the required budget will not be given back to Marketing.

If the allocated budget is much lower than the budget required for completion, the project will not be successfully completed. In this case, you have the choice to complete the project in the following period by allocating the amount required by R&D in the annual report, or shelve the project, i.e. put it aside until you have sufficient funds to complete it. Note that a project does not have to be finished in one or two periods; you may well decide to develop your first Vodite prototype in 3 or more periods.

If the allocated budget is slightly lower than the budget required for completion, there is a chance that the project will be successfully completed despite the lack of funds. Taking such a risk might not be a good idea if millions of dollars in revenues depend on the availability of the project.

#### E. Online Queries

An online query provides you with an estimate of the budget required to complete a project. You may order an online query only when the project is fully specified, i.e. when you have entered the physical characteristics and the requested base cost, unless you have specified that you want to develop the project at the minimum base cost.

While the information is provided to you immediately, be aware that their results are usually over-estimated by as much as 15% (or even more for the new Vodite technology), and that no more than five queries may be made in any given period.

If you change the specifications of your project (characteristics and/or requested base cost) after you have run the online query, you will no longer be guaranteed that the project will be completed within one period at the budget given by the query. In this case, you should run a new query to adjust your decisions according to the new specifications.

## 11. Productivity Gains

Manufacturing costs tend to decrease over time thanks to the *experience effect*. This is due to many factors such as increase in labor efficiency (fewer mistakes are made), improvement of methodologies & processes, use of new and fewer expensive materials and/or technologies and product redesign.

Experience effect should not be confused with economies of scale (the fact that manufacturing costs decrease with the size of the plant). Indeed, large plants amortize fixed costs on larger production batches; they have a higher negotiation or lobbying power; include machines of varying sizes and speeds (ensuring higher usage ratio); other cost reduction factors include transportation in big containers or access to less expensive financing. As the Marketing department is not responsible for production capacity, you are not concerned with economies of scale.

Hence, one way to reduce manufacturing costs is simply to produce more units of the same product. On average, it is estimated that manufacturing costs decrease by 15% each time cumulative production is doubled. This is represented by the blue curve on Figure 6: point A represents the base cost that was specified when the base project was developed and point B represents the transfer cost a few periods later, when cumulative production reached 600,000 units. The unit cost of this product decreased from \$150 to \$100 (a 33% reduction). Unfortunately, the slope of the curve decreases quite rapidly: the additional production necessary to get an additional 15% reduction in unit cost gets bigger and bigger.

Firms can further reduce manufacturing costs by launching a *cost reduction R&D* project, i.e. a project specifying the same physical characteristics as the initial project, but at a lower base cost. This is represented by the red curve on Figure 6. Although the unit cost will initially be higher than \$100 (point A'), the curve shows that transfer costs below \$100 will be obtained as soon as cumulative production goes beyond point B'. Then, the transfer costs will be much lower than the ones achievable by the original blue curve.

Finally, one should not forget that costs will be adjusted for inflation; this will offset part of the reduction obtained through experience.

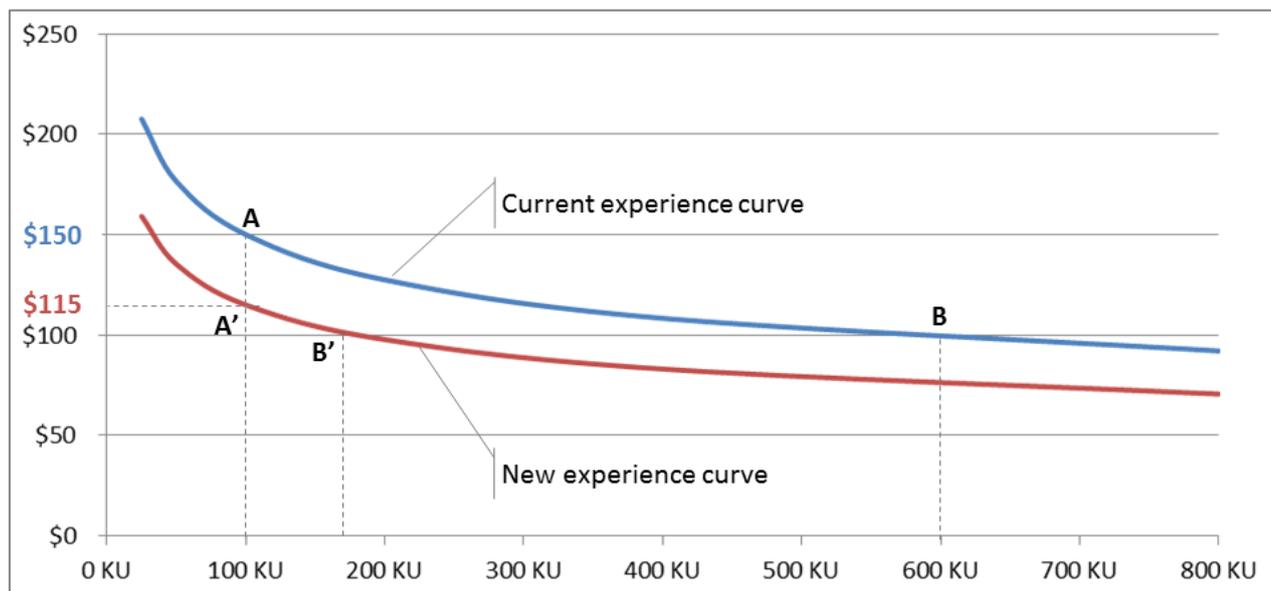


Figure 6 – Productivity gains

## 12. Marketing as a Profit Center

You will operate the Marketing department as a profit center. Your performance will be measured by the contribution that you generate. Contribution is defined as revenues from sales minus the costs listed below. Note that your *Profit and Loss* statement is described in detail in the section IV.2.B.

- R&D: budgets allocated to R&D projects;

- Production: costs of goods sold and inventory holding costs;
- Advertising: advertising budget allocated to marketed products;
- Commercial: costs incurred by the commercial team, in all three channels;
- Marketing initiatives: cost of initiative implemented in the period;
- Market research: costs of market studies ordered in the period;

#### A. Marketing Budget

Each period, you are allocated a budget to cover your expenses in R&D, advertising, commercial activities and market research purchase. This budget is linked to the success of the department, being equal to 20% of the net contribution generated in the previous period. However, there is a maximum level where resources are reallocated to other divisions of the company to maximize the return on investment at the corporate level. Similarly, there is a minimum budget level for each period, whereby headquarters may effectively subsidize your division if you are not generating the contribution sufficient for your division can continue operations.

In general, your budget for each period will be between 10 and 20 million dollars, adjusted for inflation. You will have to work within this given budget: if total spending exceeds the allocated budget for a period, expenses will be automatically cut by the Finance Control department, starting with advertising expenditures.

Your objective is to maximize your return on investment. Consequently, you should not necessarily spend your entire budget in every situation. Indeed, you should not spend one additional dollar unless you expect this dollar to generate a return higher than one dollar. If you perform outstandingly, you may be granted a large budget; however, spending it completely might be a waste of money.

*Please note that unused budget will not be carried forward to the next period.*

# IV. UNDERSTANDING YOUR ANNUAL REPORT

You will receive your annual report at the beginning of each decision round including *Market & Competitive News*, the *Company Results* and the *Market Research Studies*. This report provides you with the results of the period that just ended. For instance, you will be making decisions for period 5 based on your annual report of period 4.

*In order to illustrate varying situations, the following tables and charts have been captured in multiple industries, with different firm and at different periods. Hence, a product, project or firm may appear on a chart and not on another one.*

In addition to your annual report, you may access additional tables, graphs and interactive tools that have been especially designed to help you make better decisions and more precisely to: review and analyze your latest results in a graphical format; design R&D projects; position or reposition your product offering; determine price; or allocate your resources across market and segments. In order to simplify this manual, all these additional elements are only documented online.

## 1. Market & Competitive News

The Market & Competitive News provides general and financial data on the industry, on the competing firms and on marketed products. This is publicly held information; i.e. all competing firms have access to the same documents. The news consists of three or four sections, depending on the availability of Vodite products.

### A. Industry Dashboard

The industry dashboard provides you with a one-page summary of key performance indicators at firm and product levels such as stock market data, retail sales and market shares in value and volume, revenues and contribution. The layout will vary over time, especially when the first Vodite products are put on the market. A sample industry dashboard is depicted in Figure 7 and Figure 8.

### B. Industry Information

This is a short report showing the evolution of economic variables such as inflation rate and GNP growth rate, and providing the cost for the next period of items such as market research studies, commercial people, holding units in inventory or the disposal of inventory units in the case of a product withdrawal or upgrade.

All cost calculations are done for you by the simulation. So, you should not need to look at the report in detail.

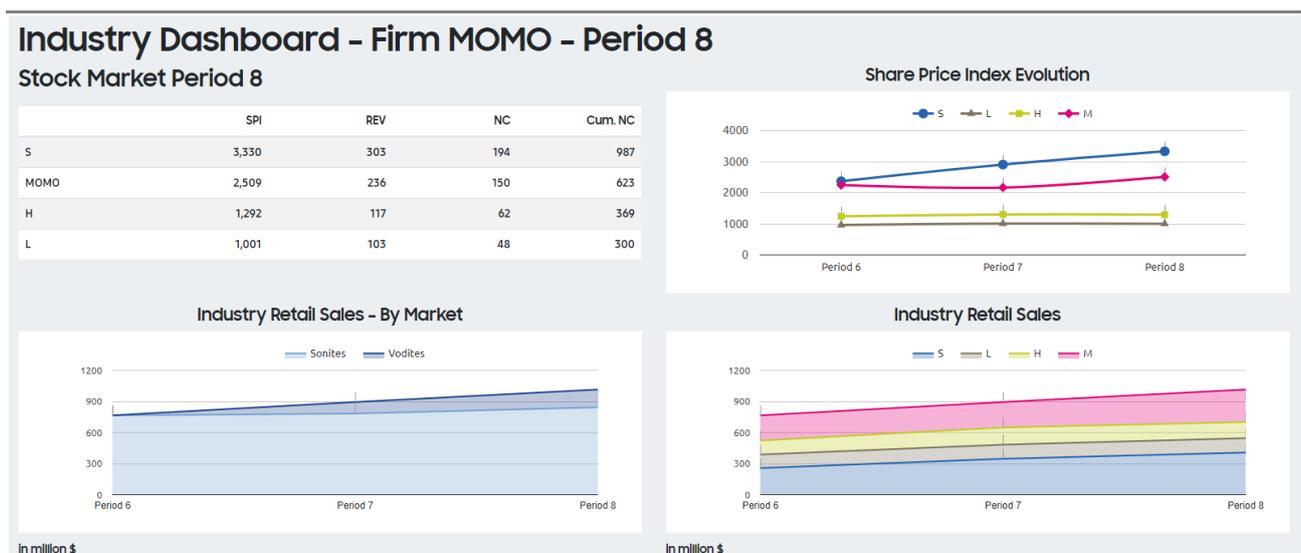


Figure 7 – Market & Competitive News – Industry dashboard (part 1)



Figure 8 – Market & Competitive News – Industry dashboard (part 2)

### C. Market Report

This report provides you with the market shares (in units and in dollar value), the volume sold and the retail sales of all marketed products (Sonites or Vodites). Volume and retail sales are given for the current period, and the variation with the previous period is provided as well. Newly launched or upgraded products are flagged. The physical characteristics, base cost and price of all marketed products are given as well. Again, newly launched or upgraded products are flagged.

Product Characteristics									
The table below lists the physical attributes of marketed products, as well as their price and estimated unit cost, both in \$.									
Product	Launched In	Features (1)	Design (2)	Battery (3)	Display (4)	Power (5)	Price	Base Cost (\$)	Base Cost (%Price)
HONO	Period 8	8	5	34	14	23	283	74	26%
HOOD	Period 4	13	7	82	29	74	439	178	40%
HOPE	Period 0	10	8	54	22	61	392	151	38%
HOST	Period 0	8	5	48	22	58	307	134	43%
LOGO	Period 8	8	5	34	13	23	282	73	26%
LONE	Period 0	11	7	83	29	76	439	181	40%
LOOP	Period 0	19	10	95	38	98	572	350	60%
LOVE	Period 3	10	7	55	22	62	393	148	37%
MONO	Period 7	7	5	49	22	56	306	131	42%
MOOD	Period 5	9	7	57	23	62	392	148	37%
MOST	Period 0	9	6	34	13	21	281	75	26%
MOVE	Period 0	13	8	82	30	72	440	181	40%
SOFT	Period 0	13	8	82	29	71	440	178	40%
SOLO	Period 0	9	8	54	22	62	394	151	38%
SOON	Period 4	8	6	34	13	20	280	74	26%
SORT	Period 5	17	8	94	35	96	457	222	48%

Figure 9 – Market & Competitive News – Product Characteristics

## 2. Company Results

The Company Results provides confidential company information. You and your team members are the only ones who have access to the information disclosed in your company results, except for data given in the *Industry Benchmarking* study. The company results are comprised of the following six sections:

- Company Dashboard
- Financial Report
- Production Report
- Research & Development Report
- Decision Review

- Feedback from your Coach

### A. Company Dashboard

The company dashboard provides you with a one-page summary of the key performance indicators of your firm and your products such as stock market data, market shares in value and volume, revenues and contribution. The layout will vary over time, especially when you introduce your first Vodite products. A sample company dashboard is depicted in Figure 10.

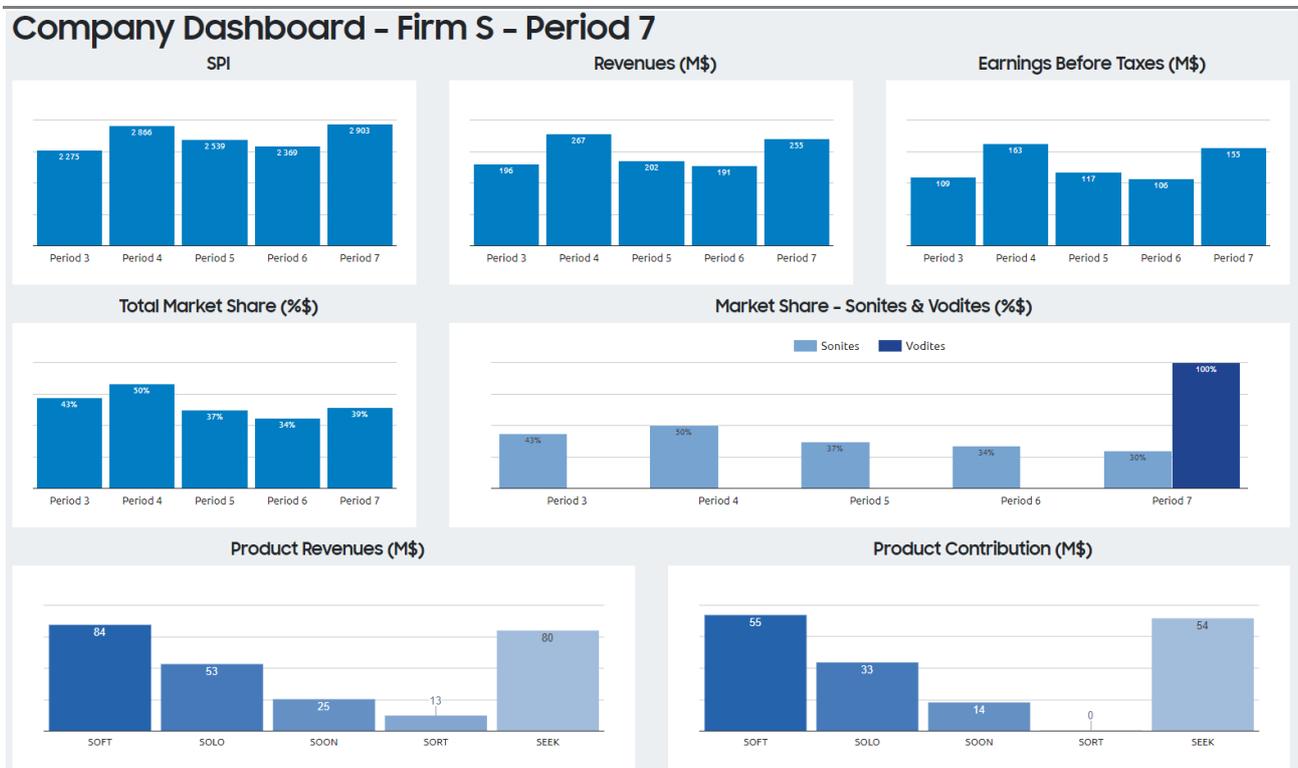


Figure 10 – Company dashboard

### B. Financial Report

This report provides you with revenues, costs and profit information at the company, market and product levels.

The *Profit & Loss statement* of your company is illustrated in Figure 11 and is explained below.

- **Revenues:** Number of units sold x Average selling price. The selling price is equal to the retail price (your decision) minus the distributors' margin.
- **Cost of goods sold (COGS):** Number of units sold x Unit transfer cost. The transfer cost is equal to the base cost of the underlying R&D project minus the productivity gains.
- **Inventory costs:** Inventory holding cost + Inventory disposal loss
  - Inventory holding costs: Units in inventory x Unit transfer cost x Inventory holding cost in % (given in the market news report).
  - Inventory disposal loss: Loss incurred when selling inventory to a trading company because of a product upgrade. Units in inventory x Unit transfer cost x Inventory disposal cost in % (given in the market news report).
- **Contribution before marketing (CBM):** Revenues – COGS – inventory costs.
- **Contribution after marketing (CAM):** CBM – advertising media – advertising research – commercial team costs (your decisions).
- **Market research studies:** costs of the market studies purchased during the period (your decision).
- **Research & Development:** budgets allocated to R&D projects during the period (your decision).

- **Marketing initiatives:** costs of the marketing initiatives implemented during the period (your decision).
- **Interests paid:** Interest paid on loans granted in previous periods.
- **Exceptional cost or profit (ECP):** Exceptional items such as product withdrawal costs.
- **Net earnings:** CAM – market research studies – R&D – interests paid – ECP.

<b>Company Profit &amp; Loss Statement</b>						
The table below shows the evolution of firm 5 financial results in thousands of dollars, as well as the cumulative results since Period 0.						
	Period 7	Period 6	Period 5	Period 4	Period 3	Cumulative
Revenues	255,262	190,972	202,474	267,346	195,685	1,459,465
Cost of goods sold	-75,981	-58,257	-58,482	-82,033	-70,469	-522,572
Inventory costs	-2,683	-3,127	-4,391	-796	-804	-12,348
Contribution before marketing	176,598	129,588	139,601	184,517	124,412	924,545
Advertising expenditures	-7,709	-5,571	-3,623	-6,482	-3,708	-35,892
Commercial costs	-13,001	-13,782	-13,584	-12,907	-9,221	-77,240
Contribution after marketing	155,889	110,235	122,395	165,128	111,484	811,414
Market research studies	-640	-640	-614	-592	-558	-4,432
Research and development	0	-3,320	-5,200	-1,660	-1,760	-13,980
Marketing initiatives	0	0	0	0	0	0
Loan reimbursed	0	0	0	0	0	0
Loan received	0	0	0	0	0	0
Loan interest paid	0	0	0	0	0	0
Exceptional cost or profit	0	0	0	0	0	0
Earnings before taxes	155,249	106,275	116,581	162,876	109,166	793,002

Figure 11 – Financial Report – P&L statement

The *Market and Product Contribution* reports are similar to the company profit & loss statement. They provide financial elements for each marketed product as well as the consolidation of all products by market. A sample product contribution chart is shown on Figure 12.

<b>Product contribution</b>					
The table below shows a comparison of the net contribution generated by the products marketed by firm 5 in Period 7.					
	SOFT Sonites	SOLO Sonites	SOON Sonites	SORT Sonites	SEEK Vodites
Revenues	84,310	53,083	25,361	12,641	79,866
Cost of goods sold	-23,766	-14,764	-7,334	-7,668	-22,450
Inventory holding cost	-78	-647	-568	-1,160	-230
Inventory disposal loss	0	0	0	0	0
Contribution before marketing	60,467	37,672	17,459	3,814	57,186
Advertising media	-1,875	-1,646	-686	-503	-2,424
Advertising research	-85	-75	-30	-20	-365
Commercial costs	-3,110	-3,102	-3,110	-3,147	-533
Contribution after marketing	55,397	32,849	13,634	144	53,865

Figure 12 – Financial Report – Product contribution

### C. Production Report

The Production Report provides you with information on the number of units produced, the number of units in inventory and on production costs for each of the products marketed in the period.

The *Sales, Production and Inventory* table shows detailed information on planned production versus actual production and the inventory levels at the beginning and at the end of the current period. All numbers are given in thousands of units.

The variation between the production plan (your decision) and the actual production (number of units produced) is due to the automatic adjustment of plus or minus 20%, depending on market demand.

The inventory at the end of period is equal to (inventory at beginning of period + actual production – units sold).

## Production Report - Firm S - Period 7

The report below provides with information on production levels and production costs for each of the products marketed in Period 7.

### Sales, Production and Inventory

The chart below shows the units sold, the production level and inventory level for each of your products at the end of Period 7. All numbers are given in thousands of units.



The table below provides you with additional details such as planned production versus the actual one, and the inventory levels at the beginning and at the end of Period 7. All numbers are given in thousands of units.

	SOFT Sonites	SOLO Sonites	SOON Sonites	SORT Sonites	SEEK Vodites
Units sold	272	195	135	41	82
Production Plan (your decision)	300	275	170	0	115
Production	240	220	136	0	92
Inventory at beginning of period	43	83	140	117	0
Inventory at end of period	11	108	141	77	10

Figure 13 – Production report – Sales, production & inventory

The *Unit Cost, COGS and Inventory Holding Cost* chart shows the unit transfer cost for each of your marketed products. The *current* unit cost is the cost of the most recently produced units, while the *average* unit cost takes into account the units that were in your inventory at the beginning of the period. You may ignore the difference in most cases. Unit transfer costs are given in \$; units sold in thousands of units. Cost of Goods Sold (COGS) are equal to Units sold x Average unit transfer cost. COGS are given in thousands of \$.

This table also shows the costs incurred for holding your inventory throughout the period. These costs include for instance the storage cost, the cost of capital, etc. Inventory holding cost is equal to Units in inventory x Average unit transfer cost x H%. In the case of a product upgrade or product withdrawal, you must dispose of your inventory at the beginning of the period and a loss is incurred. Inventory disposal loss is calculated as D% of the value of your inventory at the beginning of the period. H and D are given in the market news. Inventory holding and disposal costs are given in thousands of \$.

### D. Research & Development Report

This set of reports provides information on all R&D projects launched in the previous periods. To facilitate the reading, separate charts are provided for projects that have just been completed, for the ones that were completed in previous periods, and for projects that are not yet finished either because the allocated budget was not sufficient or because you have decided to shelve them.

The report in Figure 14 shows the list of R&D projects completed in past periods. All reports share the same layout and include the same information:

- **Project name.**
- **Available since.** Completed projects only. This is the period when the project was completed.
- **Physical Characteristics.** The physical characteristics of the future product. This data is given in the relevant units for each characteristic, e.g. gigaflops for processing power or kilograms for carbon footprint.
- **Current and minimum base costs.** The base cost is the manufacturing unit cost of the future product, assuming an initial production batch of 100,000 units. The *current* base cost is the one that you entered in the R&D decision form when specifying the project. The *minimum* base cost is the cost below which it is *impossible* to manufacture the future product without taking productivity gains into account.
- **Platform of product.** This is the name of the product that is based on this project. This column is void for projects that are not yet or no longer in use.

- **Cumulative and required allocated budgets.** Uncompleted projects only. The *cumulative* budget is the total budget that has been allocated to this project over time. The *required* budget is the budget required to finish the project, i.e. the additional budget that must be invested to ensure that the project will be completed in the following period. You may attempt to finish the project with a lower budget but its successful completion is not guaranteed.

**R&D Report – Firm S – Sonites Market – Period 4**

**Projects completed in Period 4**

The projects listed below have just been completed and can be used to launch new products or upgrade new ones

	Available Since	Physical Characteristics					Base Cost in \$			Cumulative
		Features (1)	Design (2)	Battery (3)	Display (4)	Power (5)	Current	Minimum		
POS06	Period 4	17	8	94	35	96	198	198	1,660	

(1) Features (Number of): From 5 To 20. (2) Design (Index): From 3 To 10. (3) Battery (Hour): From 24 To 96. (4) Display (Inch): From 4 To 40. (5) PPower (Gflops): From 5 To 100.

**Projects completed in past periods**

The projects listed below have been completed in past periods. The ones at the top are currently used as the production platform of one or several of your marketed products. The ones in *italic*, if any, are either no longer used or have never been used to produce a product.

	Available Since	Physical Characteristics					Base Cost in \$			Platform of Product
		Features (1)	Design (2)	Battery (3)	Display (4)	Power (5)	Current	Minimum	Cumulative	
POS05	Period 3	8	6	34	13	20	66	65	1,760	SOON
POS03	Period 2	9	8	54	22	62	134	134	890	SOLO
POS04	Period 2	13	8	82	29	71	158	158	1,150	SOFT
POS0FT	Period 0	13	8	53	33	76	226	162	1,500	N/A
POS0LO	Period 0	13	6	60	27	67	217	141	2,000	N/A

(1) Features (Number of): From 5 To 20. (2) Design (Index): From 3 To 10. (3) Battery (Hour): From 24 To 96. (4) Display (Inch): From 4 To 40. (5) PPower (Gflops): From 5 To 100.

Figure 14 – R&D report – Sample chart & explanations

## E. Decision Review

This report recalls the decisions that your team made at the beginning of the current period: product management, commercial team management, R&D projects and the market research studies purchased. Note that the decisions shown in Period 0 were made by the previous management team which you and your teammates have replaced.

The *Product Management* chart lists the products that were marketed during the period, including the ones that were launched in that period. The base R&D project indicates which project was used as the platform of the product. The other lines show the marketing decisions made for the product: advertising media and research budgets; segmentation strategy, i.e. how to allocate advertising across consumer segments; and communication objectives (in case of product positioning or repositioning through advertising).

The *Commercial Team* chart shows how many full-time equivalent people and budget you have allocated to each product and each distribution channel. Two graphs show how your commercial team resources were allocated across channels and products.

The *R&D Projects* chart shows the projects that you have initiated or continued in the period in a format similar to the one of the R&D Report. The *Online Queries* chart reminds you of the online queries that you have requested from R&D while making your decisions to evaluate the budgets to allocate to projects. Note that this chart might be empty in case you ordered no R&D projects.

Finally, the *Market Research Studies* chart lists the studies that you have ordered. Note that this chart might be empty in case you ordered no study.

## F. Feedback from your coach

This report provides you with a list of feedback messages that have been generated by the simulation based on your firm and product situations. This report is aimed at helping identify some critical issues within your decisions and results. It is a nice complement to your own analysis, but certainly not a substitute. Make sure to spend a good part of your decision time to review and analyze your report and your market studies.

Your instructor may decide to hide the automated feedback. Some instructors prefer to provide their own feedback while facilitating the Simulation group work. Others want to make sure that you do your own analysis and are not misled by automatically generated messages.

The feedback starts with a section on your firm and continues with a section for each of your products. The feedback messages focus mainly on your weaknesses and issues rather than on your strengths or successes. So, do not be surprised if your only get *negative* messages.

Some messages are highly important and require immediate corrective actions. Other messages are less important as they will only lead to a minor improvement of your decisions and results. Finally, a few messages cannot be ignored if the suggested actions are not part of your strategy.

At the firm level, you will be notified if:

- A large proportion of your contribution is generated by a unique product.
- You market a small number of offerings compared to other competitors.
- No or few leading products.
- Your products are targeted at non-attractive segments and/or markets.
- Your revenues are not growing and/or your costs are growing more rapidly than your revenues.
- Etc.

At the product level, you will be notified if:

- Your market share is decreasing.
- Your product perceptions are not quite different from segment's expectations.
- Your price is too high.
- Your price does not take advantage of a strong competitive position.
- You have lost sales due to production shortage.
- You have accumulated a large inventory because of a production surplus.
- Your awareness is much lower than that of your competitor and your sales would increase with additional advertising.
- You have not set perceptual objectives or your spending in advertising research is too low.
- You have lost sales due to a poor distribution (small commercial team).
- Your commercial efforts are not aligned with the shopping habits of your consumers.
- You could benefit from a cost-reduction R&D project.
- Etc.

Some numbers will be hidden in the messages if you did not purchase all market studies.

### 3. Market Research Studies

You may purchase up to 27 Market Research Studies each period. The following list provides a brief summary of information within each study.

#### A. Industry Benchmarking

The benchmarking study compiles general information from annual reports about each of the Simulation competitors. The same data is provided in a common format for all companies in such a way that would allow you to compare competitive performance. Summary graphs are provided as well to facilitate the comparison of key data across competitive teams.

The data provided includes sales, production costs, marketing expenditures and other expenses, including R&D. See Figure 15 for a sample benchmarking study.

## Industry Benchmarking – Period 4

The benchmarking study compiles general information from annual reports about each of the Markstrat competitors. Data is provided in a common format for all companies to allow an easy comparison of competitive performance.

### Overall Company Performances and Expenditures

The two charts below show the overall performances of the competing firms in terms of revenues and profits, in million \$, as well as their expenditures in the main cost categories in million \$.



### Company Profit & Loss Statements

The table below provides an estimated P&L statement of the competing firms, in the same format as the one in your financial statements. All numbers are given in million \$.

	MOMO	S	L	H
Revenues	98.5	267.3	93.7	71.0
Cost of goods sold	-34.8	-82.0	-45.3	-28.2
Inventory costs	-0.8	-0.8	-3.5	-2.6
Contribution before marketing	62.8	184.5	44.9	40.1
Advertising expenditures	-2.7	-6.5	-3.8	-3.8
Commercial team costs	-6.5	-12.9	-6.4	-6.4
Contribution after marketing	53.7	165.1	34.6	29.9
Market research studies	-0.6	-0.6	-0.6	-0.6
Research and development	-1.1	-1.7	0	0
Marketing initiatives	0	0	0	0
Interests paid	0	0	0	0
Exceptional cost or profit	0	0	0	0
Earnings before taxes	52.0	162.9	34.0	29.3
Next Period Budget	11.5	23.0	11.5	11.5

Figure 15 – Market Research – Industry Benchmarking

## B. Consumer Survey

The consumer survey is a survey questionnaire administered to 3,000 individuals during the simulated period. It gives product *awareness*, *purchase intentions* and *shopping habit* data for each consumer segment in the market.

The product awareness figures represent the proportion of individuals who have unaided recall of a product name. This is obtained by asking respondents a question such as: “What Sonite products do you know?” and allowing them to list several products. The report gives the information for each product currently on the market in total and by consumer segment. See Figure 16 for a sample graph showing average awareness figures.

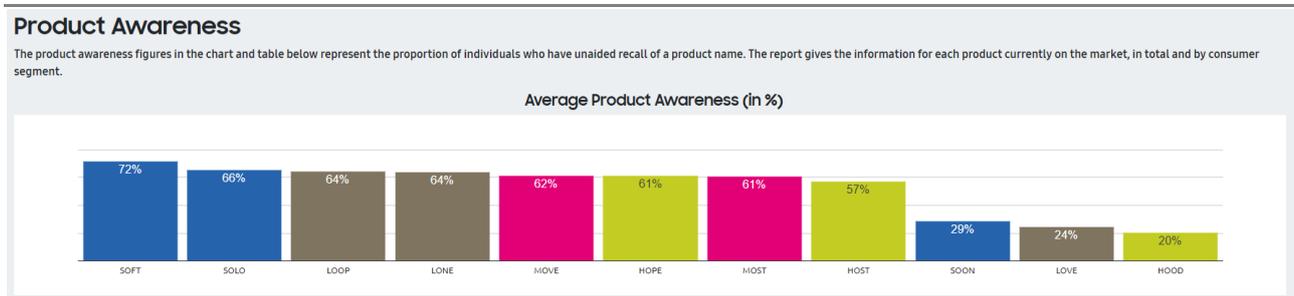


Figure 16 – Market Research – Consumer Survey – Average Awareness

The purchase intentions figures represent the proportion of individuals who would select a product as their first choice, if they were buying within a year. This is obtained by asking respondents a question such as: “Do you intend to purchase a Vodite product this period?” If the response is yes, then respondents are asked to indicate the product of their choice. The report gives the information for each product currently on the market in total and by consumer segment. See Figure 17 for a sample chart. Please note that these figures correspond

to the period when the study is done and does not necessarily represent purchase intentions for the following year.

Two points require additional explanations. First, awareness is *factored in* purchase intentions. Indeed, if respondents are not aware of a specific product they will not list this product as the product of their first choice. Second, purchase intentions are *normalized* to sum up to 100%. This facilitates the comparison between purchase intentions and market shares but it may produce purchase intentions figures that are higher than awareness figures. A typical example is the launch of the first Vodite product: even if this product is known by only a few passionate innovators it will have 100% purchase intentions if it is the only one on the market.

Product Awareness by Consumer Segment						
Product	Firm	Tech Enthusiasts	Baby Boomers	Gen-X	Millennials	Gen-Z
HOOD	H	14 %	16 %	26 %	21 %	16 %
HOPE	H	48 %	52 %	65 %	69 %	53 %
HOST	H	48 %	62 %	64 %	51 %	60 %
LONE	L	61 %	56 %	68 %	65 %	60 %
LOOP	L	62 %	52 %	67 %	67 %	61 %
LOVE	L	18 %	14 %	26 %	29 %	23 %
MOST	MOMO	49 %	48 %	64 %	62 %	68 %
MOVE	MOMO	57 %	59 %	72 %	59 %	49 %
SOFT	S	69 %	65 %	76 %	72 %	68 %
SOLO	S	65 %	49 %	66 %	70 %	67 %
SOON	S	20 %	14 %	30 %	35 %	29 %

Figure 17 – Market Research – Consumer Survey – Purchase intentions by segment

The shopping habit data represent, for each of the three channels, the proportion of individuals who would choose that channel when shopping for a Sonite or a Vodite product. See Figure 18 for a sample graph.



Figure 18 – Market Research – Consumer Survey – Shopping habits

### C. Consumer Panel

The consumer panel study is based on a sample group of over 500 consumers whose buying behavior is believed to be representative of the entire market. It provides market share by consumer segment as well as industry sales in the product category. The market share figures represent the proportion of individuals who have purchased a given product during the simulated period. The report gives the information for each product currently on the market in total and by consumer segment; see Figure 19.

Market Shares by Consumer Segment (%Unit)						
Product	Firm	Tech Enthusiasts	Baby Boomers	Gen-X	Millennials	Gen-Z
HOOD	H	1%	0%	2%	0%	0%
HOPE	H	2%	11%	1%	20%	3%
HOST	H	1%	52%	0%	0%	10%
LONE	L	5%	3%	6%	1%	1%
LOOP	L	56%	2%	1%	0%	1%
LOVE	L	1%	2%	0%	14%	1%
MOST	MOMO	0%	6%	0%	0%	69%
MOVE	MOMO	10%	4%	24%	1%	1%
SOFT	S	21%	6%	64%	2%	2%
SOLO	S	4%	14%	1%	61%	4%
SOON	S	0%	1%	0%	0%	10%

Figure 19 – Market Research – Consumer Panel – Market shares

Additional charts give the unit product category sales by consumer segment and in total. The relative sizes of the consumer segments are provided as well in Figure 20.

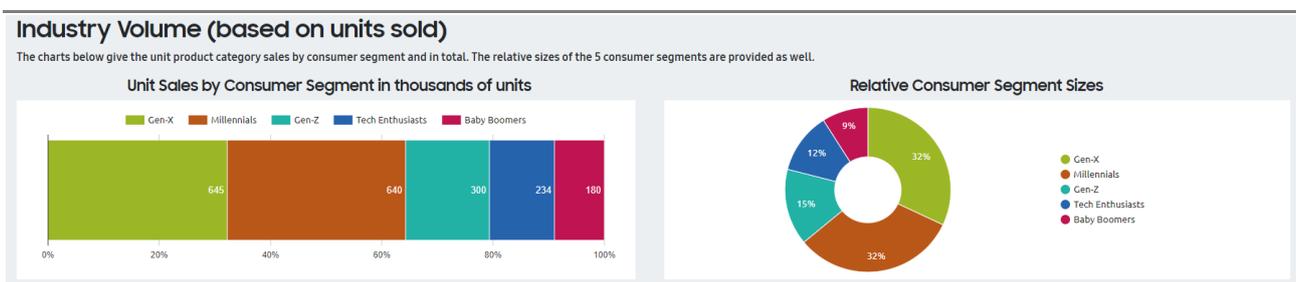


Figure 20 – Market Research – Consumer Panel – Market shares

#### D. Customer Centricity

The customer centricity report goes in depth in the customer purchasing decision, and this take shape of the purchase funnel. The Purchase Funnel which is an overview of the steps in customer' purchases – Awareness, Consideration, Preference, Purchase Intention, Market Share, Loyalty and Advocacy.

- **Awareness** – Extent to which a product is recognized by potential consumers and is correctly associated with a particular product.
- **Consideration** – Consumer evaluation of how your offering meets this need, including the evaluation of offerings from your competitors.
- **Preference** – A consumer's logical and emotional inclination towards one solution or another, ultimately leading to a purchasing decision.
- **Purchase intention** – Consumers will intend to purchase the product if they can find it
- **Market share** – Consumer has bought your product.
- **Loyalty** – Likelihood that previous consumers will continue to buy your product.
- **Engagement** – Consumers will promote and recommend your product.

The purchase funnel can be examined by products and by consumer segment (using drop down menus).

## CUSTOMER CENTRICITY

The Customer Centricity presents : the Purchase Funnel which is an overview of the steps in customer' purchases – Awareness, Consideration, Preference, Purchase Intention, Market Share, Loyalty and Advocacy. The purchase funnel can be examined by products and by consumer segment (use drop down menus).

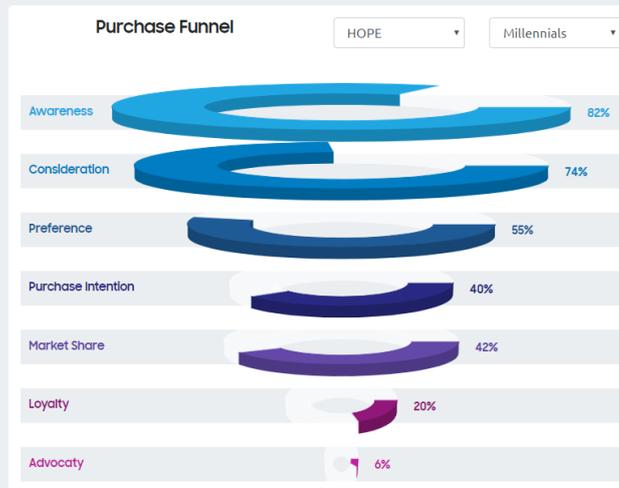


Figure 21 – Market Research – Customer Centricity – Purchase Funnel

### E. Distribution Panel

The distribution panel provides continuous tracking of product sales to consumers based on information gathered at the retail point-of-sale. Information is primarily gathered from scanning cash-registers with supplementary store audits. Our read represents sales in about 17,000 retail outlets in the Simulation world. The table and charts of this study provide the market shares, based on unit sold, by channel for each product currently on the market. They also give the unit product category sales by channel and in total. The relative sizes of the channels are provided as well in Figure 22.

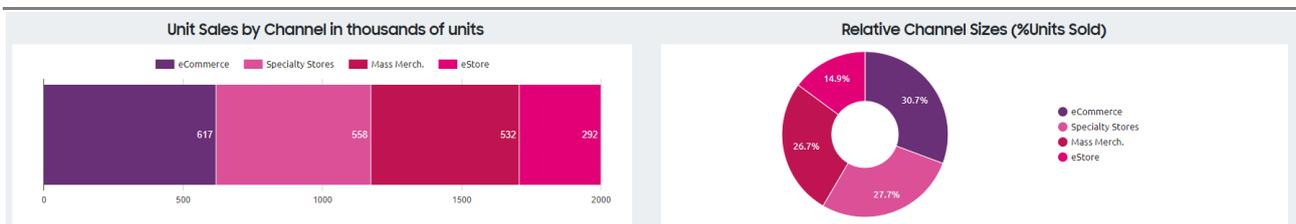


Figure 22 – Market Research – Distribution Panel – Channel sales

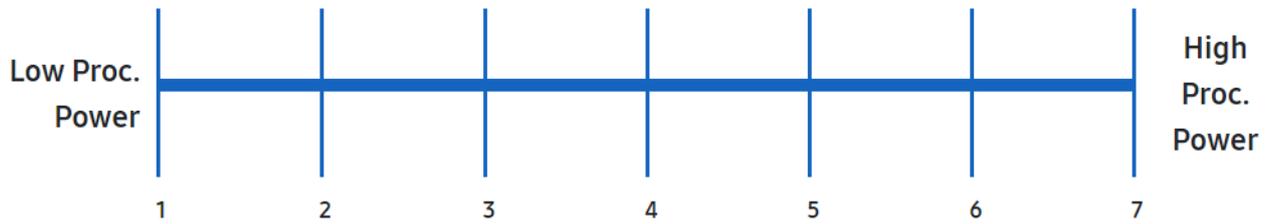
The distribution coverage figures in Figure 23 represent the proportion of stores that carry a given product. The report gives the information for each product currently on the market. The number of outlets in each distribution channel is provided as well.

Product	Firm	Specialty Stores	Mass Merch.	eCommerce
HOOD	H	13 %	11 %	9 %
HOPE	H	35 %	40 %	52 %
HOST	H	49 %	32 %	23 %
LONE	L	39 %	35 %	29 %
LOOP	L	48 %	24 %	30 %
LOVE	L	23 %	28 %	38 %
MOST	MOMO	33 %	55 %	50 %
MOVE	MOMO	48 %	43 %	37 %
SOFT	S	56 %	59 %	53 %
SOLO	S	51 %	56 %	65 %
SOON	S	8 %	17 %	14 %

Figure 23 – Market Research – Distribution Panel – Distribution coverage

## F. Semantic scales

The semantic scales study provides data based on a semantic differential questionnaire administered to 600 individuals. Several semantic scales corresponding to the physical attributes were presented to the respondents. The figure below shows a sample scale for “Processing Power”.



Crucial information is derived from these questionnaires: product perceptions, ideal value along each scale, ideal value evolution, product maps and ship between product attributes and product perceptions.

**Product perceptions.** Respondents are asked to rate each product on a scale from 1 to 7 according to the way they perceive the product. The reported results are summarized in a table such as the one in Figure 24, using the mean value for each product. For example, a product rated 2.3 on the Power scale is perceived as being less *powerful* than a product rating 5.5 on the same scale.

Product perceptions							
Respondents are asked to rate each product according to the way they perceive the product on each characteristic. The reported results are summarized in the table below, using the mean value for each product.							
Product	Firm	# Features	Design	Battery	Display	Proc. Power	Price
HOOD	H	4.3	4.8	5.9	5.3	5.1	5.6
HOPE	H	4.4	4.5	4.4	4.0	4.1	4.7
HOST	H	3.2	2.3	3.2	2.9	3.7	3.2
LONE	L	4.3	5.2	4.8	4.1	4.9	5.7
LOOP	L	6.5	6.5	6.5	6.5	6.4	6.2
LOVE	L	2.9	4.8	3.5	4.1	4.7	4.7
MOST	MOMO	3.0	3.2	2.4	2.0	1.9	2.5
MOVE	MOMO	3.5	6.0	4.5	5.3	4.8	5.7
SOFT	S	4.3	5.6	4.9	5.5	5.0	5.7
SOLO	S	3.3	4.6	3.7	4.3	4.4	4.7
SOON	S	2.1	3.2	1.8	2.3	1.6	2.9

Figure 24 – Market Research – Semantic Scales – Product perceptions

**Ideal values.** Respondents are also asked to indicate their preferred (also called “Ideal”) value on each scale. The reported results are summarized in a table such as the one in

Ideal Values							
Respondents are also asked to indicate their preferred (also called “Ideal”) value on each scale. The reported results are summarized in the table below, using the mean value for each segment.							
Segment	# Features	Design	Battery	Display	Proc. Power	Price	
Tech Enthusiasts	6.3	6.3	6.4	6.3	6.2	6.1	
Baby Boomers	2.1	2.7	3.1	3.9	4.1	3.3	
Gen-X	4.1	5.4	5.8	5.2	5.2	5.6	
Millennials	3.0	4.8	3.6	4.5	4.4	4.7	
Gen-Z	2.7	3.9	1.8	2.6	2.1	3.0	

Figure 25, using the mean value for each segment.

Ideal Values							
Respondents are also asked to indicate their preferred (also called “Ideal”) value on each scale. The reported results are summarized in the table below, using the mean value for each segment.							
Segment	# Features	Design	Battery	Display	Proc. Power	Price	
Tech Enthusiasts	6.3	6.3	6.4	6.3	6.2	6.1	
Baby Boomers	2.1	2.7	3.1	3.9	4.1	3.3	
Gen-X	4.1	5.4	5.8	5.2	5.2	5.6	
Millennials	3.0	4.8	3.6	4.5	4.4	4.7	
Gen-Z	2.7	3.9	1.8	2.6	2.1	3.0	

Figure 25 – Market Research – Semantic Scales – Ideal values

**Importance of characteristics.** Finally, respondents are asked to rate the importance of each characteristic in their purchasing decision. Although consumer segments differ on the exact importance attributed to each

characteristic, they tend to agree on the ranking of the scales, i.e. their “relative” importance. This is why only average values are reported on the chart of Figure 26. Ratings are given on a scale from 1 (not important) to 10 (very important).

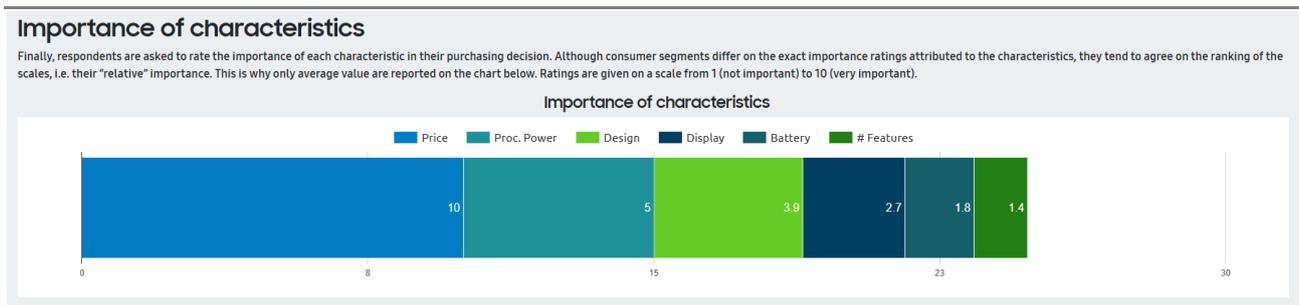


Figure 26 – Market Research – Semantic Scales – Importance of characteristics

**Product maps.** Additional charts and graphs are available in the study. Product maps provide a graphical representation of ideal values and product perceptions on two dimensions at a time. Five maps are provided in the study.

**Ideal value evolution.** The study monitors the evolution of consumer needs over time. The preferred values on each scale over the past 3 years are recorded and displayed in a table for each consumer segment, as shown on Figure 52.

**Additional graphs.** The charts and graphs listed above are given in the main report of the study. Two additional series of charts can be found by clicking on a link at the top of the study. The first series will provide you with a graphical representation of ideal point evolution since the beginning of the simulation. The second series shows the relationships that exist between product physical characteristics and product perceptions. These charts are mostly used to design R&D projects are discussed in more details in chapter VI.

### G. Multidimensional scaling of product similarities and preferences

This study provides a joint space configuration obtained with non-metric multidimensional scaling. It relies on similarity and preference data on the complete set of products available in the market. These data were obtained through interviews with 200 individuals. Several charts and graphs are given in this study, as explained in the next few paragraphs.

**Perceptual Maps.** The study gives the minimum number of dimensions that are sufficient to provide a good fit to the data. In the case of the Sonite product category, three dimensions are necessary: Economy, Performance and Convenience. Then, the study provides a graphical representation of the perceptual positioning of the marketed products.

Respondents are also asked to indicate their preferred (also called “Ideal”) position on the map. The reported results are summarized on the map, using the mean value for each segment. A sample perceptual map is depicted in Figure 27.

Obviously, only two dimensions out of the three can be represented simultaneously. The circles *Ex*, *Sh*, *Pr*, *Hi*, and *Sa* on the graph represent the ideal points of the five segments, i.e. the average position of the whole segment. The various geometric shapes (square, triangle, star...) correspond to the positioning of the products as they are perceived by the market at the time of the study. Each product name is clearly labeled. One specific color and shape is attributed to each firm (for example, all products marketed by firm M is represented by blue circles).

One key difference between this study and the semantic scale one is that the dimensions on which to evaluate the products are not given to the respondents. Instead, they are identified by the methodology from the respondents’ data.

Building a perceptual map is a complex task that requires many data points. Hence, this study will not be available for the Vodite product category until several products are marketed in the category.

Two tables give the coordinates of the product positions and of the consumer segment ideal points on the perceptual map, on a scale from -20 to +20.

**Ideal value evolution.** The study monitors the evolution of consumer needs over time. For each consumer segment the preferred values on each dimension over the past 3 years are recorded and displayed in a table.

**Influence of Product Characteristics on Perceptual Dimensions.** We will see in the chapter “Positioning and Research & Development” that the MDS study is useful in positioning products. This is why it is important to relate the three dimensions identified by the MDS study to the most important physical characteristics of the category. An indication of the influence of product characteristics on perceptual dimensions is provided in a table such as the one in Figure 28. For example, you may see that “Performance” is strongly related to “Processing Power” and moderately to “Display Size”, while “Convenience” is strongly related to “Design” and only slightly related to “Battery Life” or “Features”.

**Additional graphs.** The charts and graphs listed above are given in the main report of the study. Two additional series of charts can be found by clicking on a link at the top of the study. The first series will provide you with a graphical representation of ideal point evolution since the beginning of the simulation. The second series shows the relationships that exist between product physical characteristics and product perceptions. These charts are mostly used to design R&D projects are discussed in more details in chapter VI.

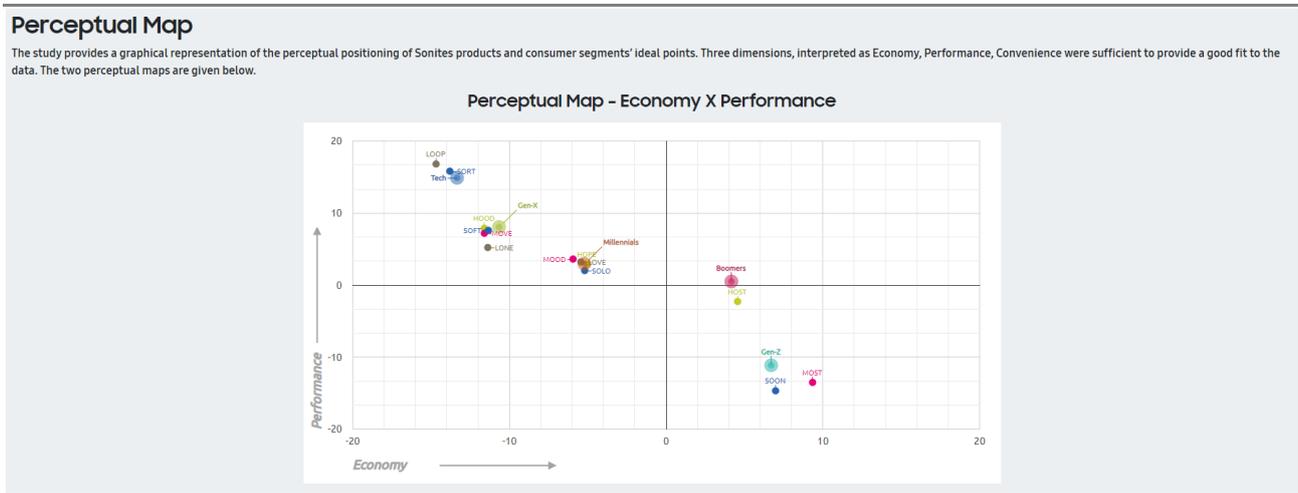


Figure 27 – Market Research – MDS Study – Perceptual map (Economy X Performance)

**Influence of Product Characteristics on Perceptual Dimensions**

An indication of the influence of product characteristics on perceptual dimensions is provided in the table below to help you interpret the dimension that were derived from the study.

Dimension	# Features	Design	Battery	Display	Proc. Power	Price
Economy	Slight	Slight	Slight	Slight	Slight	Strong
Performance	Slight	None	Slight	Moderate	Very Strong	Slight
Convenience	Moderate	Strong	Moderate	Slight	Slight	Slight

Figure 28 – Market Research – MDS Study – Influence of Product Characteristics

## H. Competitive Advertising and Commercial Team Estimates

The “Competitive Intelligence” report provides estimates of the advertising and commercial budgets spent by the companies in each market during the simulated period.

**Competitive Advertising.** Competitive advertising budgets are given by firm, by product and by consumer segment. The breakdown by product and consumer segment is also provided. All products marketed in the current period are included in the study. See Figure 29 for an extract of this study.

**Estimated Communication Dimensions and Message Quality.** This section provides an estimate of the dimensions that have been used by all products in their communication, as well as an estimate of the message quality. The message quality is a function of the level of *advertising research* budget allocated to a product, as well as its position towards the targeted segment’s ideal point.

**Competitive Commercial Team.** This study estimates the size of competitive commercial teams by firm, product and channel, and how the teams are allocated to products and channels. All products marketed in the current period are included in the study. See Figure 30 for an extract.

Estimated Product Advertising Expenditures (in thousand dollars) - Total and by Consumer Segment						
Product	Tech Enthuslasts	Baby Boomers	Gen-X	Millennials	Gen-Z	Total
HONO	50	50	50	50	300	500
HOOD	50	50	550	50	50	750
HOPE	150	150	150	1,150	150	1,750
HOST	50	350	50	50	100	600
LOGO	50	50	50	50	300	500
LONE	50	50	400	150	50	700
LOOP	550	100	100	100	100	950
LOVE	150	150	150	1,050	150	1,650
MONO	50	400	50	50	150	700
MOOD	100	100	100	850	100	1,250
MOST	200	200	200	200	1,400	2,200
MOVE	150	150	1,050	150	150	1,650
SOFT	150	150	900	150	150	1,500
SOLO	100	100	100	800	100	1,200
SOON	50	50	50	50	500	700
SORT	350	50	50	50	50	550

Figure 29 – Market Research – Competitive Advertising – Product expenditures

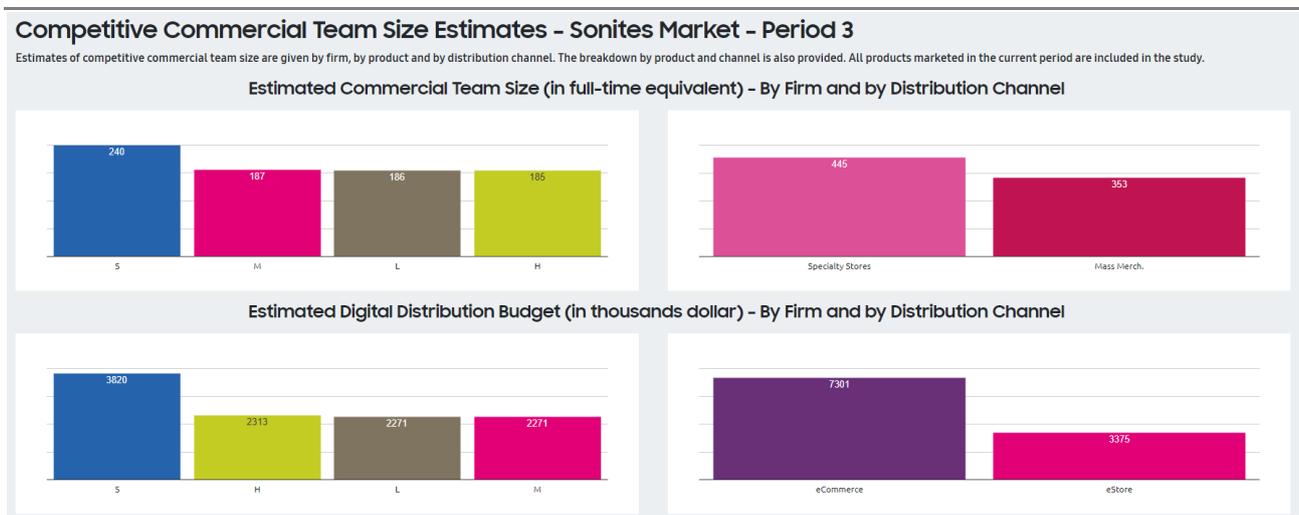


Figure 30 – Market Research – Competitive Commercial Team – Size by firm and channel

## I. Media Reporting

This Report contains all information related to media.

**Media Share of Voice & Coverage.** Share of voice measures how much of the conversation with target consumers your product owns versus your competitors. This conversation can be on social media, your blog, and any other place your target audience can hear from products. Media coverage is used to refer to all blog articles, RSS feeds, video content or other types of digital content (produced by individuals or organizations other than your own company) where your product, products or services are discussed or shown.

**Media Habits & Return on Marketing Investment.** The segments media habits represent the media usage of any target group. Usually, this research is used by media planners at the highest levels of media buying. Return

on marketing investment (ROMI) is the contribution to profit attributable to marketing (net of marketing spending), divided by the marketing 'invested' or risked.

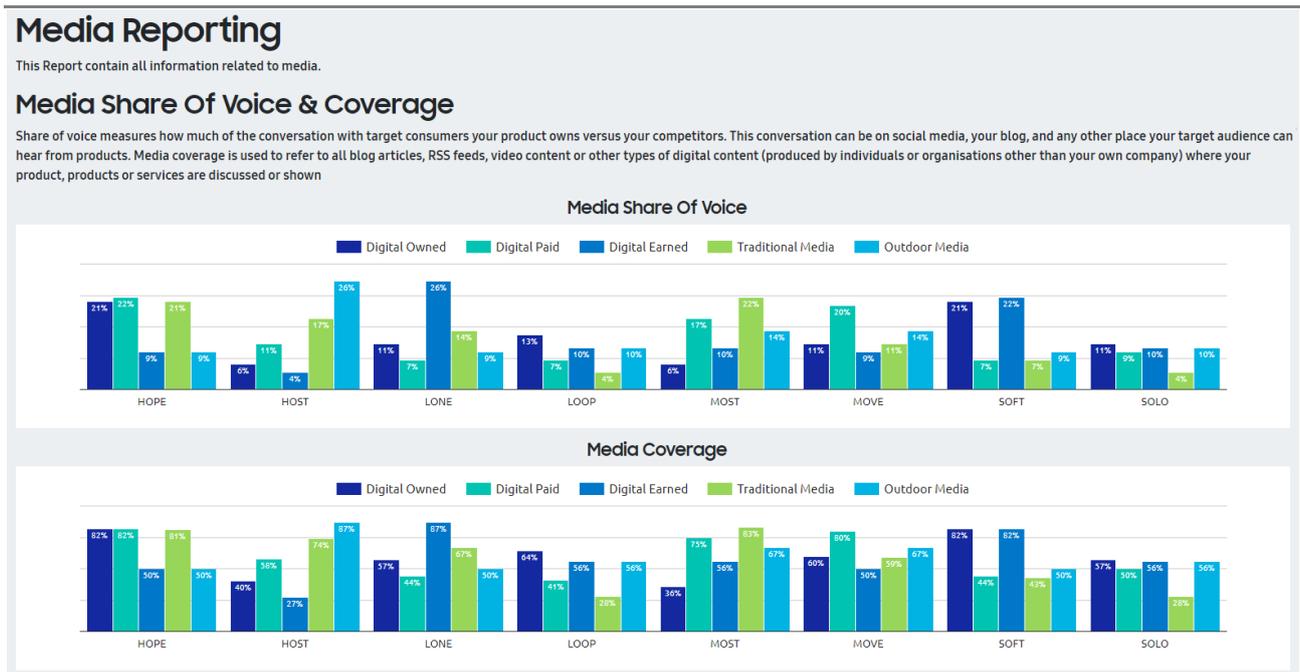


Figure 31 – Market Research – Media Reporting – Media share of voice & coverage

## J. Advertising and Commercial Team Experiments

The “Experiment” report provides the results of advertising and commercial team experiments that are conducted in a selected regional test market during the simulated period.

**Advertising experiment.** An advertising experiment is conducted by increasing advertising budgets in a selected regional market. The results of the study are used to project the level of awareness and the market share that would have been achieved nationwide by each product with the same increase in advertising and if competitive actions had remained unchanged. The impact on product contribution is provided as well. An increase in contribution for a given product shows that you would have benefited from advertising for this product. The layout of this study is very similar to that of the commercial team experiment, illustrated in Figure 32.

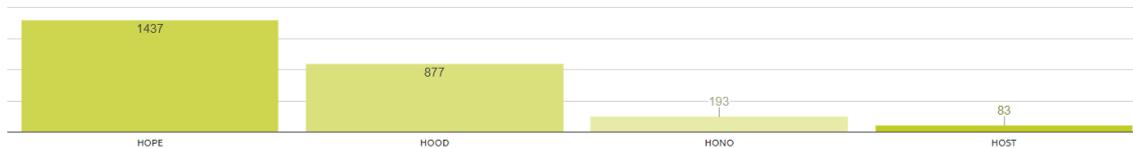
**Commercial Team experiment.** This experiment is set up by increasing the size of the commercial team or budget allocated (digital channel) in each channel in a selected regional market. The results of the study are used to project the additional number of distributors and the market share that would have been achieved nationwide by each product with the same increase in commercial budget and if competitive actions have remained unchanged. The impact on product contribution is provided as well. An increase in contribution for a given product shows that you would have benefited from allocating more people to this product. See Figure 32 for a sample screenshot of this study.

## Advertising Experiment - Sonites Market - Period 9

This experiment is conducted by increasing advertising budgets in a selected regional market. The results of the study are used to project the level of awareness and the market share that would have been achieved nationwide by each product with the same increase in advertising, and if competitive actions have remained unchanged. The impact on product contribution is provided as well.

The results below would have been achieved by a given product if its advertising budget had been increased by 20% and if competitive actions had remained unchanged.

Expected Change in Contribution (in K\$)



Expected Change in Product Awareness

Product	Tech	Boomers	Gen-X	Millennials	Gen-Z
HONO	0.3%	0.2%	0.6%	1.2%	1.2%
HOOD	0.6%	0.7%	1.3%	1.5%	1.4%
HOPE	0.7%	0.6%	1.0%	1.2%	1.3%
HOST	0.3%	0.4%	0.7%	0.7%	0.5%

Expected Change in unit Market Share (%U)

Product	Tech	Boomers	Gen-X	Millennials	Gen-Z
HONO	0.0%	0.0%	0.0%	0.0%	0.3%
HOOD	0.2%	0.0%	0.7%	0.0%	0.0%
HOPE	0.0%	0.1%	0.1%	0.7%	0.0%
HOST	0.0%	1.0%	0.0%	0.0%	0.0%

Figure 32 – Market Research – Commercial Team Experiment

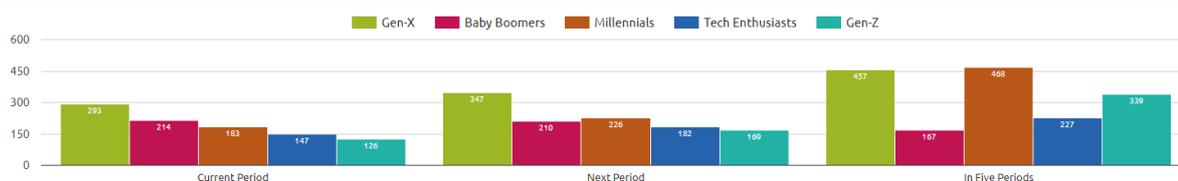
## K. Market Forecast

This study provides estimates of the expected market size in one period and in five periods. Results are given for the whole market and are also broken down by consumer segment. These estimates are based on the current market situation and assume that no substantial changes such as product introductions, or significant price increases or decreases will take place in the future. Consequently, depending on what actions are taken by your firm and your competitors, the resulting market size will either be higher or lower. For the new Vodite market, the estimates are based on interviews of potential consumers. These are less accurate and often turn out to be optimistic. See Figure 33 for an extract of this study.

## Market Size by Consumer Segment

The charts below show the actual market size this period and the expected market size in one and five periods. Results are broken down by segment. Relative segment size, in % of the total market size, and segment growth rates are reported as well. Sizes are given in thousands of units.

Market size broken down by consumer segment (in thousands of units)



Consumer Segment Growth Rates (in % units)

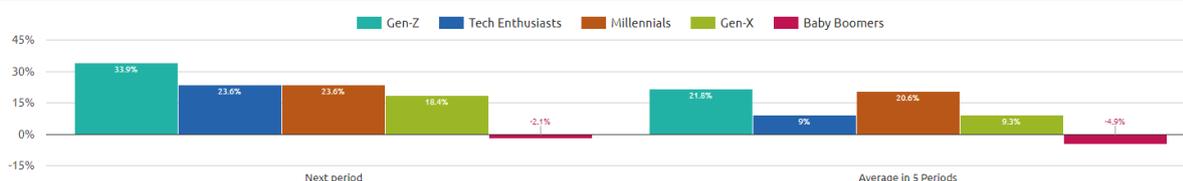


Figure 33 – Market Forecast – Market Size broken down by Consumer Segment

## L. Conjoint Analysis

Conjoint analysis is a statistical technique used to calculate the value – also called utility – attached by consumers to varying levels of physical characteristics and/or price. Conjoint analysis is conducted by showing respondents a set of fictitious products – each having a specific price and specific levels of limited number of attributes – and asking them to sort these products by decreasing order of preference. By analyzing the preference data and the combination of attributes and price for each product, the methodology evaluates the utility attached by respondents to the individual elements making up the product.

This study is rather complex and expensive and is therefore not always made available to participants. Check with your Instructor if this study will be available in your course. The complexity of the study increases dramatically with the number of attributes and the number of levels included in the study. Hence, only price and the three physical characteristics that are perceived as most important are studied; four levels are tested for each attribute. For instance, the four prices \$200, \$225, \$275 and \$350 will be tested.

**Relative importance of price and physical characteristics.** The chart depicted in Figure 34 shows the relative importance of price and the three physical characteristics that are perceived as most important in the market. Note that importance ratings for a given segment sum to 100%.

**Utility charts.** The charts depicted in Figure 35 show the utilities attached to four arbitrary levels in each dimension included in the study. Utilities are measured on a scale from 0% (very low utility) to 100% (very high utility); the higher the utility the higher the preference of the consumer for the corresponding level in this dimension. The four levels have been chosen in the feasible range for the dimension (e.g.: from 3 to 9 for Design) to test varying levels of interest. Results are broken down by consumer segment.

It is important to note that the level with the highest utility is **not** necessarily the **ideal** level, as given in the semantic scales or MDS studies. For instance, in Figure 35, the ideal price may be anywhere between \$136 and \$367.

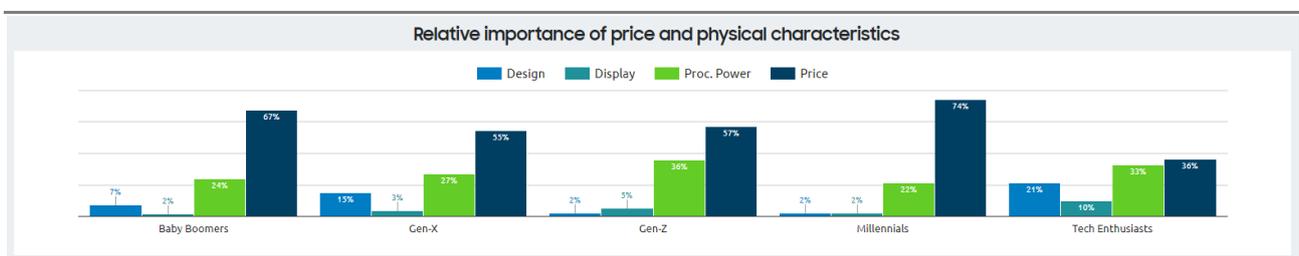


Figure 34 – Conjoint Analysis – Relative importance of attributes



Figure 35 – Conjoint Analysis – Utility charts

## M. Semantic Scales versus Multidimensional Scaling versus Conjoint Analysis

The three studies semantic scales, multidimensional scaling and conjoint analysis give information on how to reposition a product to provide more value to consumers. For the semantic scales and multidimensional scaling studies, your objective should be to get closer to the ideal point of the targeted segment. For the conjoint analysis study, your objective should be to maximize the overall utility of your product.

In most cases, the three studies will give consistent results. So, the question “which of these three studies should I use?” is frequently asked by participants. You will find below some recommendation about which study to use and when.

- Use the Semantic Scales study to design R&D projects, i.e. to determine the *ideal* level in each physical characteristic. This study is very much appropriate to do this because there is a one-to-one relation between the dimensions of the study and product physical characteristics.
- Use the MDS study to decide on your strategy. The MDS study is great for strategy because it provides a helicopter view of the entire competitive situation. Putting the two perceptual maps next to each other on the same page or screen will help you; find where to reposition your existing products; where to launch new ones; and, last but not least, anticipate the moves of your competitors.

- Use the MDS study also for communication. The reason is twofold: (1) you will communicate on the dimensions that really matter to your customers: Economy, Performance, Convenience, ...; (2) You can reposition a product along more physical characteristics by using MDS than by using Semantic Scales.
- Use Conjoint Analysis to validate or invalidate the findings made with the other two studies. Will the new characteristics or price of my product maximize total utility? But be cautious: this study may be misleading because only four levels are tested along four dimensions. The optimal level for a given dimension is usually in between two of the four tested values, but you do not know where exactly.

## 4. Tools

This menu will usually be available as of Period 3.

The Tools section provides you with a charting tool as well as with other decision-support tools that may become available at a later stage depending on your instructor.

The charting tool is depicted on Figure 36. It provides you with a multitude of graphs and with a scorecard. It is pretty easy to use. The menu at the top lists all the available graphs and charts. Select one of them in the list to display it in the main window.

Depending on the chart that you have selected, additional drop-down choice boxes will show up below the menu, as shown on Figure 36. These choice boxes will let you zoom in a particular market, segment, channel, period or firm. They may also be used to view the data in units (e.g.: volume sold) or in value (e.g.: retail sales). The Next and Previous buttons let you navigate across all graphs without using the menu.

All charts may be copied and pasted in PowerPoint; printed or saved in a file. Click on the chart and right-click your mouse to show a menu that will let you choose what you want to do with the picture.

### A. Graphs

Over 50 graphs can be plotted. They are organized in 4 categories.

- **Market.** Evolution of selected market data: market sizes and growth rates; segment sizes; number of marketed products; prices, market average and by consumer segment.
- **Performance.** Evolution of key performance indicators at firm level: retail sales; sales and shares by market, segment and channel; contribution (profit) per period and cumulative; return on investment; share price index.
- **Benchmarking (M\$ and %Revenues).** Evolution of profit and loss data at firm level: retail sales; revenues; production costs; marketing costs; R&D costs; profit; etc. Benchmarking charts are available in million dollars as well as in percentage of revenues to allow an easier comparison across firms of varying sizes.
- **Product charts.** Evolution of key performance indicators at product level: retail sales; market shares; contribution. Product charts are available in varying format, for instance top 5 products across all marketed products, or only the products of a selected firm.

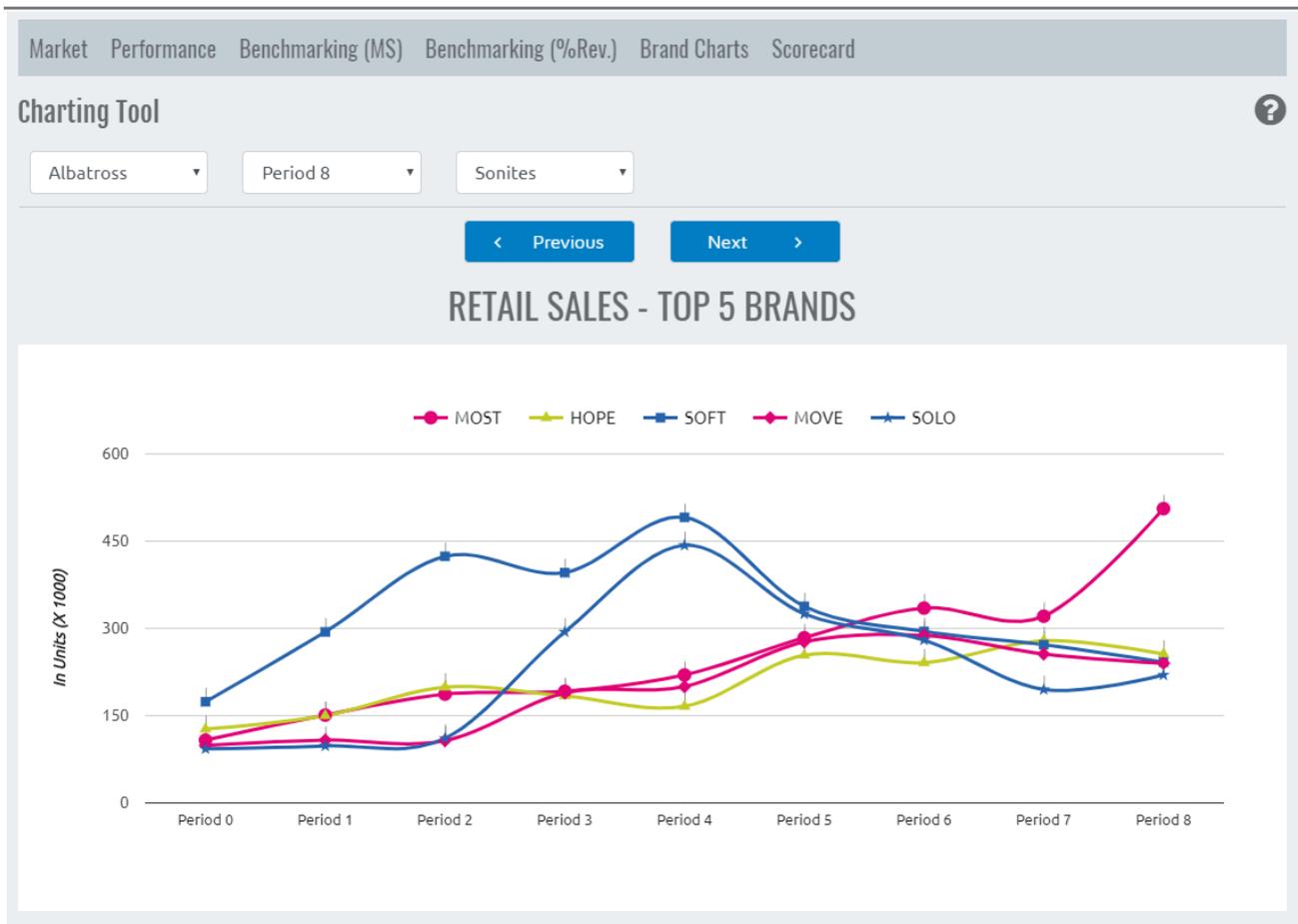


Figure 36 – Tools – Charting tool

## B. Scorecard

The Company Scorecard shows the evolution of key performance indicators of your company in Finance, Marketing, Production, Distribution and R&D. It allows you to monitor these KPIs over time and check if you are going in the right direction. See example in Figure 37.

- **Financial KPIs.** Total revenues; revenues in each market; revenues from new products (other than your two initial products); Total contribution after marketing (CAM); CAM generated by each market; CAM generated by new products; net contribution, in million dollars and in percentage of revenues.
- **Marketing KPIs.** Total market share, in volume and value; market share in each market; number of marketed products, in total and in each market; number of products leading in a segment.
- **Distribution KPIs.** Overall distribution coverage; distribution costs, in million dollars and in percentage of revenues; estimates of lost sales due to insufficient commercial efforts.
- **Production KPIs.** Volume sold; volume produced; units in inventory; inventory costs; estimates of lost sales due to production shortage.
- **R&D KPIs.** R&D expenses, in total and in each market; number of completed R&D projects, in total and in each market.

## COMPANY SCORECARD

The scorecard below shows the evolution of KPIs on Finance, Marketing, Production, Distribution and R&D.

### FINANCIAL KPIs

	Period 0	Period 4	Period 5	Period 6	Period 7	Period 8
<b>Revenues</b>	49	98	146	180	184	236
Revenues - Sonites	49	98	146	180	184	236
Revenues - Vodites	0	0	0	0	0	0
Revenues - New brands			12	32	45	60
<b>CAM</b>	22	54	88	108	110	152
CAM - Sonites	22	54	88	108	110	152
CAM - Vodites	0	0	0	0	0	0
CAM - New brands			2	13	18	28
<b>Net contribution</b>	22	52	87	106	105	150
<b>Net Contrib. (%Rev)</b>	45	53	59	59	57	63

All numbers are given in million dollars. CAM: Contribution After Marketing.

Figure 37 – Tools – Company Scorecard (excerpt)

# V. MAKING DECISIONS

## 1. Team Identity Decision

Initially, the competing companies are identified by a unique letter such as M, L, S or H. Your first task will be to name your company, starting with this letter and reflecting the spirit of your team.

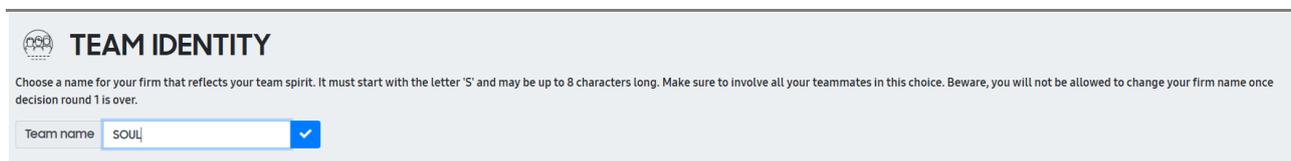


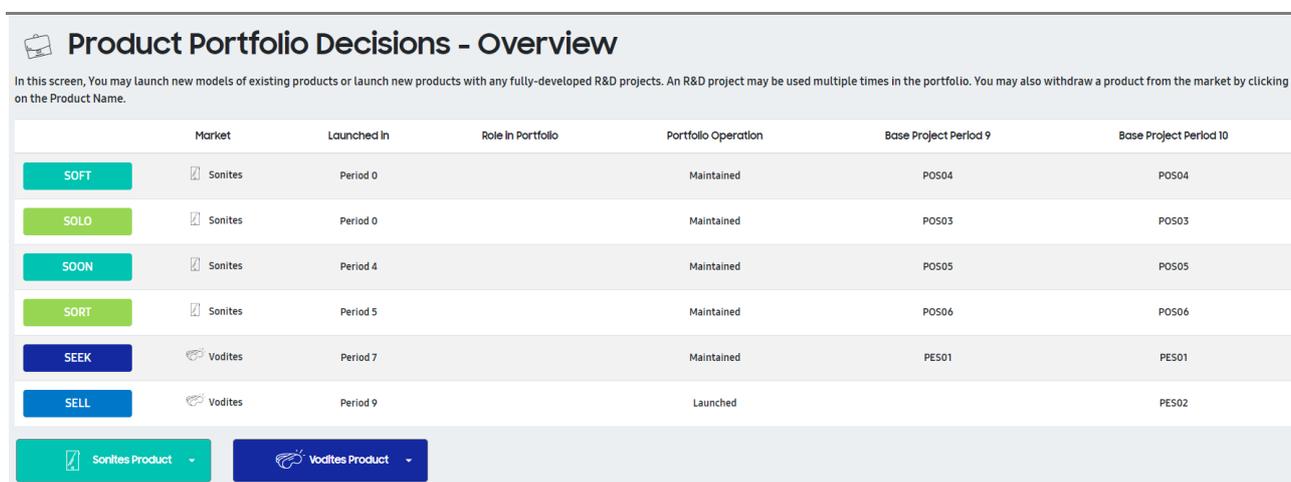
Figure 38 – Team Identity decision

## 2. Making Product Portfolio Decisions

This section focuses on how to use decision forms to withdraw, introduce new products or new models of existing products. Read sections III.2 and VI.4 to learn more about situations when product portfolio decisions are required.

The product portfolio form shown in Figure 39 gives an overview of your current product portfolio. A product may be:

- **Maintained.** No product portfolio operation has been conducted on this product. Hence, you will market the same product as in the previous period.
- **Launched.** This product is a new one that will be marketed for the first time at the next period. Two cases here, with a new product or a new model of product, see section V.2.B.
- **Withdrawn.** This product will no longer be marketed as of the beginning of the decision period.



	Market	Launched in	Role in Portfolio	Portfolio Operation	Base Project Period 9	Base Project Period 10
SOFT	Sonites	Period 0		Maintained	POS04	POS04
SOLO	Sonites	Period 0		Maintained	POS03	POS03
SOON	Sonites	Period 4		Maintained	POS05	POS05
SORT	Sonites	Period 5		Maintained	POS06	POS06
SEEK	Vodites	Period 7		Maintained	PE501	PE501
SELL	Vodites	Period 9		Launched		PE502

Figure 39 – Product portfolio decisions – Home

### A. Introducing a new product

You may either choose the *Launch a new product* or *Launch a new model of product* button corresponding to the market in which you want to introduce the new product. The form shown in Figure 40 will appear. The name of the new product must be entered using the naming conventions discussed in section II.3. The role of this new product in your portfolio should be entered as well; although it has no impact on product performance, it has proven to be quite useful. Finally, you must indicate the base R&D project of the product, i.e. the product's technical specifications. It must be selected from the list of available R&D projects included in the form.

Once you have launched a new product, you need to make marketing mix decisions for that product, and you must allocate commercial efforts to it, in the channels where you want to distribute the product.

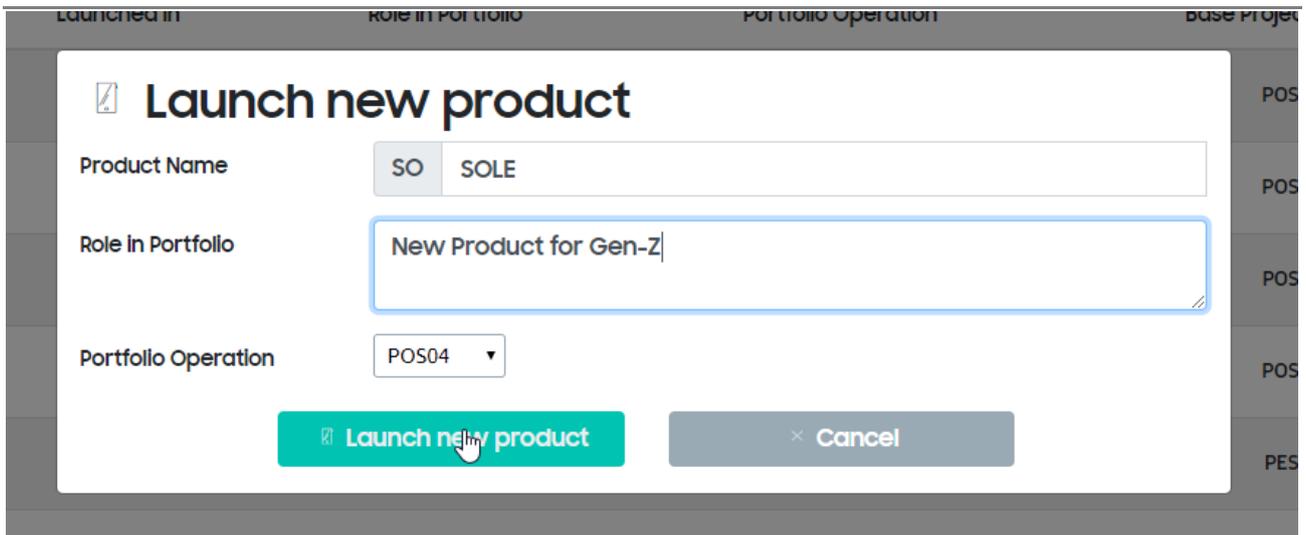
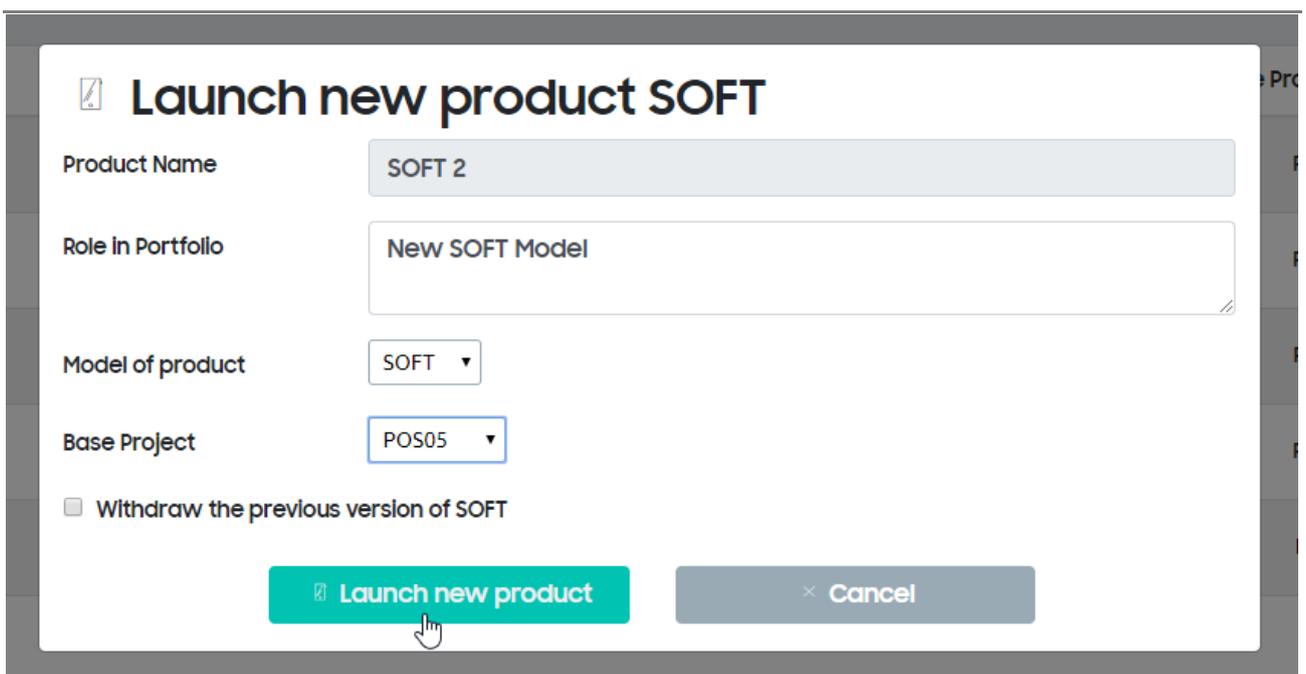


Figure 40 – Product portfolio decisions – New product launch

### B. Introducing a new model of product

Choose the *Launch a new model of product* button corresponding to the market in which you want to introduce the new model of product. The form shown in Figure 41 will appear. The name of the new product is automatically filled under the designation of the based product name with a model number (1, 2, 3 etc.). The role of this new model in your portfolio should be entered as well; although it has no impact on product performance, it has proven to be quite useful. As a new product launch, you must indicate the base R&D project of the product, i.e. the product’s technical specifications. It must be selected from the list of available R&D projects included in the form. Finally, you have the choice of keeping the based product or to withdraw it.

Once you have launched a new product, you need to make marketing mix decisions for that product, and you must allocate commercial efforts to it, in the channels where you want to distribute it.



### C. Withdrawing an existing product

To withdraw an existing product, click on its name in the summary form shown in Figure 39. A new form shows up, as depicted in Figure 42. Select the *Withdraw* operation to withdraw the product.

The screenshot shows a modal window titled "What operation do you want to do on this product?". It contains the following elements:

- Product Name:** A text input field containing "SO SOON".
- Role In Portfolio:** An empty text input field.
- Portfolio Operation:** A dropdown menu with "Maintain" selected, and "Withdraw" highlighted by the mouse.
- Base Project:** An empty text input field.
- Close Button:** A button with a close icon and the text "Close".

Figure 42 – Product portfolio decisions – Product withdrawal

### D. Undoing a product portfolio operation

You may undo any of the product portfolio operations that you have initiated. To do so, simply click on the name of the product involved. A form will show up, reminding you of the chosen operation: launch or withdrawal. Click the *Undo* button to clear this operation from your decisions.

Launched products will simply disappear from your portfolio and all related decisions such as marketing mix and allocation of commercial people will be deleted. Withdrawn products will return to their original state, i.e. the decisions of the previous period will be duplicated for the current decision period.

## 3. Making Marketing Initiative Decisions

This section focuses on launching Marketing Initiatives to reinforce your overall marketing efforts. You have to click on an initiative for a complete description and to decide to implement it. All initiatives will be available as of Period 1, and some events will have a specific seasonality. For instance, an event taking place every 4 years will take place in years 1, 5, 9 etc.

### Sponsorship

- Football World Cup** – One of the biggest sport's competitions in the world, the Football World Cup is contested by national teams of International Football Federation members every 4 years. It is the most widely viewed and followed sporting event in the world attracting an audience in the billions across all generations. The Football World Cup attracts many global sponsors from different B2C industry sectors. There is no event quite like the Football World Cup that will give you the opportunity to reach such a large audience and profoundly raise product awareness and engagement of your global product.
- World's Fair** – The World's Fair, also called World Expo or Universal Exposition, is a large international exhibition designed to showcase achievements of nations. Sponsoring this event allows companies to

spread their name and reinforce their relationship with existing customers. This exhibition takes place every 4 years and is visited up to 10s of millions of people mostly by an audience of over 40 years of age.

- **eSports World Convention** – The Electronic Sports World Convention (ESWC) is an international professional gaming championship. This yearly event has been praised for its organization and ability to put on a good show for spectators, who are mostly from the younger generation or tech savvy adults. It is recognized as an interesting event to communicate on the company image to a well targeted audience.

### Promotion

- **Distributors' End Year Sales** – Sales promotion is the process of persuading a potential customer to buy your product. It is used as a short-term tactic to boost sales but doesn't necessarily build long-term customer loyalty. Investing in the end of year promotions will provide a great opportunity to help your company reach out to price-sensitive customers and encourage an end of year spike in sales.
- **eStore Trade-in offers** – To encourage customers to buy your latest models, you may initiate Trade-In offers on your eStore. Examples of trade-in offers include discounts on upgrading to new model or providing a special offer on returning an old model to have it upgraded. This type of initiative should have an immediate effect on your sales, any time of the year.
- **Product Bundle** – Bundling your products into a single offer is generally done to create greater value and therefore enhance the offering to the customer. This type of initiative will lead price sensitive customers to purchase and increase the average basket price. It can however push back some customers who cannot afford the purchase of multiple products at once.

### Partnership

- **Contribution to Education** – Your firm can partner with an Educational Institution by providing selected high schools and colleges with your company's technological products at a discounted price or for free. Showing an engagement and commitment to the education sector will boost your company's corporate social responsibility image and potentially result in a more loyal customer base who are proud of the company's involvement in such an initiative.
- **Product Training in Shops** – Invite your distributors to train customers on your products directly in the shops. Customers who usually have difficulty adopting the latest technologies will certainly appreciate this precious help and it will help distributors raise interest for your products and probably encourage purchase.

### User Experience

- **Company Ecosystem, Tools & Services** – Developing an ecosystem around your products will allow you to encourage purchase of associated products, tools and services. It will particularly raise interest among tech enthusiasts, but also reinforce their commitment to your company products.

### Viral

- **Viral Advertising Initiative** – Viral advertising is a business strategy that utilizes your firm's social networks to promote your company name or your products. Spread your message further by developing an advertisement campaign with a celebrity and raise global awareness and interest among customers who use social media.

### Product Placement

- **Blockbuster Movie** – Product placement is the inclusion of a produced product in media, usually without explicit reference to the product. Blockbuster movies usually attract people from all generations and are appreciated for their high-quality production. Investing in product placement in Blockbuster movies should raise your awareness among all types of customers and enhance the image of your products.
- **Series** – Product placement is the inclusion of a produced product in media, usually without explicit reference to the product. The practice is considered a type of pull marketing, designed to increase

consumer awareness of the product and product. Reach a mostly younger audience by placing your product in a popular TV series.

### Influencers

- **YouTubers & Bloggers** – Align your company and products with influential people who have a strong following on social media with your target market. Once you've identified individuals who have influence over potential customers, your company will be able to launch specific marketing activities around these influencers, with the objective that they will raise a strong interest among their followers.

### Additional Services

- **Extended Warranty** – By offering a prolonged warranty to your consumers, in addition to the standard warranty, you will reinforce customers' trust in the high quality of your products and reassure them that they are taking low risk by purchasing your products. It will attract potential customers to consider your products and will have a direct impact on sales.
- **Free Shipping** – By offering free shipping for online purchases to your customers, you will provide an overall lower basket price to you end-customer. It will be an appreciated gesture to very price sensitive customers, considering that they are happy with your products attributes and benefits.

## 4. Making Marketing Mix Decisions

This section focuses on how to use decision forms to make marketing mix decisions. Visit the sections Production, Pricing, Advertising and Repositioning strategies to learn more about the purpose of these decisions.

Figure 43 shows the marketing mix decision form. Click on a product name at the top of this page to display the detailed marketing mix decisions of this particular product.

### Production

The production plan must be entered in units. To help you make this decision, the form indicates how many units were sold in the previous period and how many units are held in inventory at the beginning of the period.

### Price

The price entered in this form is the *recommended retail price* or *list price*, i.e. the price paid by customers, except for consumers shopping in channels which practice a discount. The price must be given in dollars. The form indicates the price that was set in the previous period.

### Advertising

The advertising budget must be entered in thousands of dollars. The form indicates what the advertising budget of the product was in the previous period.

You must also set two communication objectives: 60% of the budget will be allocated to the first objective, and 40% to the second. You will choose between Awareness, Interest, Action and Engagement.

Finally, you must indicate how you want to allocate this budget across consumer segments. The percentages entered in the cells must sum to 100%, otherwise you will not be allowed to close the form and save your decisions.

### Perceptual objectives

Perceptual objectives allow you to reposition the product, i.e. to change consumers' perceptions of the product. Read section VI.5 to learn more on repositioning products through advertising.

If your intent is just to raise awareness, simply select *No objectives*. Otherwise, you may specify your objectives in term of *Semantic Scales* or *Multidimensional Scales*. Objectives can be set on one or two dimensions. Select the dimensions on which you want to communicate in the *Dimension 1* and *Dimension 2* choice boxes. Finally, enter the desired level on each dimension in the *Objective 1* and *Objective 2* choice boxes. If you wish to focus on a single dimension, pick *None* in the *Dimension 2* box.

LOVE
LONE
LOOP
LOGO
Marketing Mix Expenditures

## MARKETING MIX DECISIONS – LOGO

Product LOGO is a new product launched in the Sonites market in Period 8. LOGO will be based on R&D project POL06 in Period Period 9.

### Production

Enter here your production plan in Units for LOGO.  
3,665 units of LOGO were sold during Period 8.  
There are 200,335 units of product LOGO available in your inventory.

#### Sales, Production and Inventory (thousands of units)

Category	Value (thousands of units)
Units sold	4
Production	204
Inventory at end of period	200

### Price

Specify the recommended retail price in \$ at which you wish to sell product LOGO.  
This is the list price for consumers.  
This price was 282 in Period 8.

#### Competitor price evolution

Period	LOGO	MOST	SOON	HOST
Period 6	260	287	260	287
Period 7	269	293	269	293
Period 8	280	307	280	307

#### Unit Margin

	LOGO
Recommended Retail Price	304
Average Retail Price	282
Average Distribution Margin	84
Average Selling Price	198
Estimated Unit Transfer Cost	60
Unit Margin	139

### Advertising

Enter below your advertising budgets for product LOGO, in thousands of \$.  
The advertising budget of product LOGO in Period 8 was 1590.

Total:

Set two communication objectives. 60% of the budget will be allocated to the first objective, and 40% to the second.

1<sup>st</sup> Objective:  ▼

2<sup>nd</sup> Objective:  ▼

Open Customer Centricity Report

Indicate also how you want to allocate these budgets across consumer segments.

Tech Enthusiasts	Baby Boomers	Gen-X	Millennials	Gen-Z	Total
<input style="width: 100%; height: 20px;" type="text" value="0%"/>	<input style="width: 100%; height: 20px;" type="text" value="0%"/>	<input style="width: 100%; height: 20px;" type="text" value="0%"/>	<input style="width: 100%; height: 20px;" type="text" value="0%"/>	<input style="width: 100%; height: 20px;" type="text" value="100%"/>	<input style="width: 100%; height: 20px;" type="text" value="100%"/>
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The Sales Force & Commercial decision form is displayed in Figure 44. The form includes one column per distribution channel and one row per marketed product. Enter the number of full-time equivalent commercial people that you want to allocate to each product in each traditional channel and budget allocation dedicated to digital channels. You can modify the allocation across distribution channels and the products at no cost.

The *View Budget* button takes you to a form showing the cost of your sales force & commercial, broken down by channel, and a comparison with the previous period. The *View Allocation* button shows how your sales force & commercial allocation across markets (this may not be relevant if you have not yet launched a Vodite product), across channels and across products. You may thus check that the numbers you have entered are in line with your overall market, channel and product strategies.

	Traditional		Digital	
	Specialty Stores	Mass Merch.	eCommerce	eStore
LOVE	7	21	\$811 k	\$329 k
LONE	12	16	\$608 k	\$532 k
LOOP	27	14	\$557 k	\$279 k
LOGO	6	25	\$861 k	\$228 k

Figure 44 – Commercial Team decision screen

## 7. Making Research & Development Decisions

This section focuses on how to use decision forms to make R&D decisions. Read sections II.1 and II.2 to learn more about product attributes; sections III.10 to understand the interface between Marketing and R&D; and section VI.5.B and VI.6 to review situations where R&D will be necessary to reposition your products.

The R&D series of decision forms will guide you through these decisions. The form depicted in Figure 45 shows up when you choose the R&D icon on the decision home. It gives an overview of your current R&D projects.

Knowing the R&D terminology is necessary to fully understanding this section.

- **Completed project.** A project is *completed* if it was created in a past period and sufficient budget was allocated to it. Completed projects may be used for product portfolio operations, as explained in section V.1. Completed projects do not show up in R&D decisions.
- **Uncompleted projects.** A project is *uncompleted* if it was created in a past period and the R&D department could not complete it because the allocated budget was not sufficient. Uncompleted projects may be *continued* or *shelved*.
- **Continued projects.** An uncompleted project is *continued* if you allocate a budget to it in the current decision period. A continued project may be shelved in a later period.
- **Shelved projects.** An uncompleted project is *shelved* if you have stopped allocating budget to it. A shelved project may be continued in a later period.
- **New projects.** A project is *new* if it has been created in the current decision period. A new project can be deleted if you change your mind.

From this form you may create new projects or manage uncompleted ones, i.e. continue or shelve them.

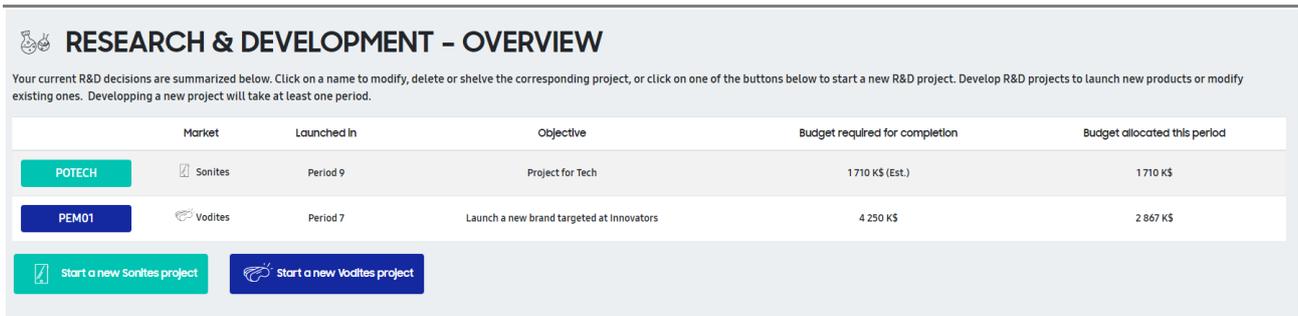


Figure 45 – R&D decisions – Home

### A. Creating a project

Choose the *Launch a new project* button corresponding to the market in which you want to create the new project. A new form will appear and show a series of inputs like project name, objective, physical characteristics, base cost and allocated budget. This form is shown in Figure 48.

When the process is completed, the project home page will be displayed. This page provides you with a recap of your project decisions.

### B. Continuing or shelving a project

Past projects that could not be completed in the previous period are automatically continued at the beginning of the decision period. Hence, all your uncompleted projects will appear in the R&D home form shown in Figure 45. Click on a project name to zoom on the project and show its recap form, as shown in Figure 46.

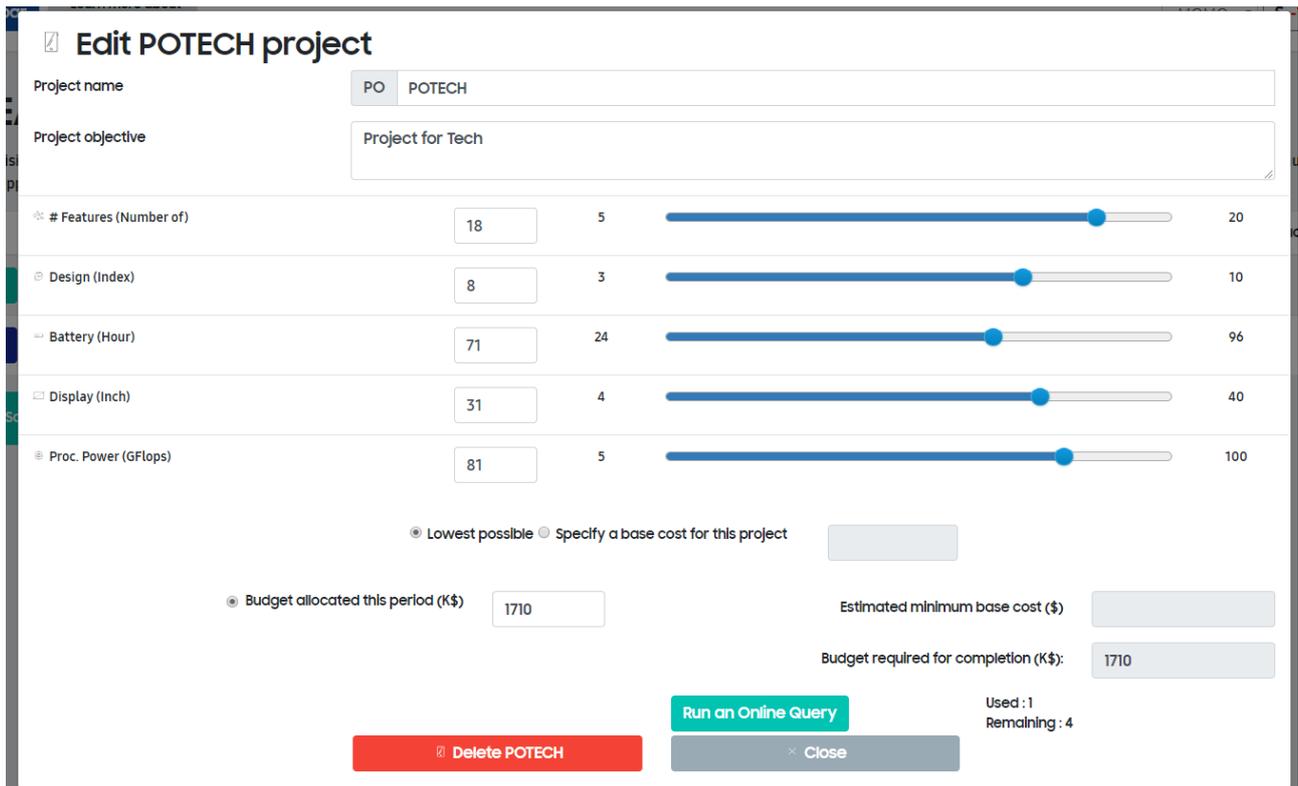


Figure 46 – R&D decisions – Shelve Project

To continue a project, you simply need to allocate a budget to it, as explained in sections V.7.F and Figure 46. Because a continued project is a past project, the recap form tells you exactly what budget is required to complete it. The other decisions – name, description, characteristics and base cost – cannot be modified.

To shelve a project, simply click the *Shelve* button at the bottom of the form. The project will be removed from your current R&D decisions and will no longer appear on the form in Figure 45. Shelved projects may be continued at any time, as explained in section V.7.C.

### C. Unshelving a project

Choose the *Shelved Projects* button to continue a past project. If this button does not appear on your R&D home form, then it means that you do not have any shelved projects that can be continued.

The list of past shelved projects is displayed. Click on a project name to zoom on the project and show its recap form, as shown on Figure 47. Make sure that this is the project that you want to continue and, if yes, click the *Unshelve* button.

You will then have to allocate a budget to the project. Because this is a past project, the recap form tells you exactly what budget is required to complete the project. The other decisions – name, description, characteristics and base cost – cannot be modified.

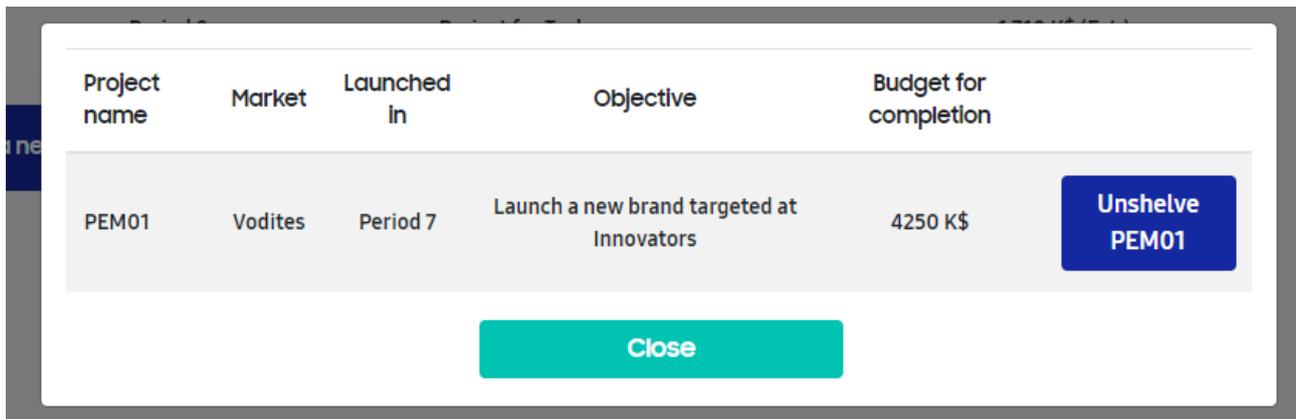


Figure 47 – R&D decisions – Unshelve Project

### D. Project name and objective

The name of a project must be entered using the naming conventions discussed in section III.10.A. The objective of the new project should be entered as well. Note that names of continued projects cannot be changed.

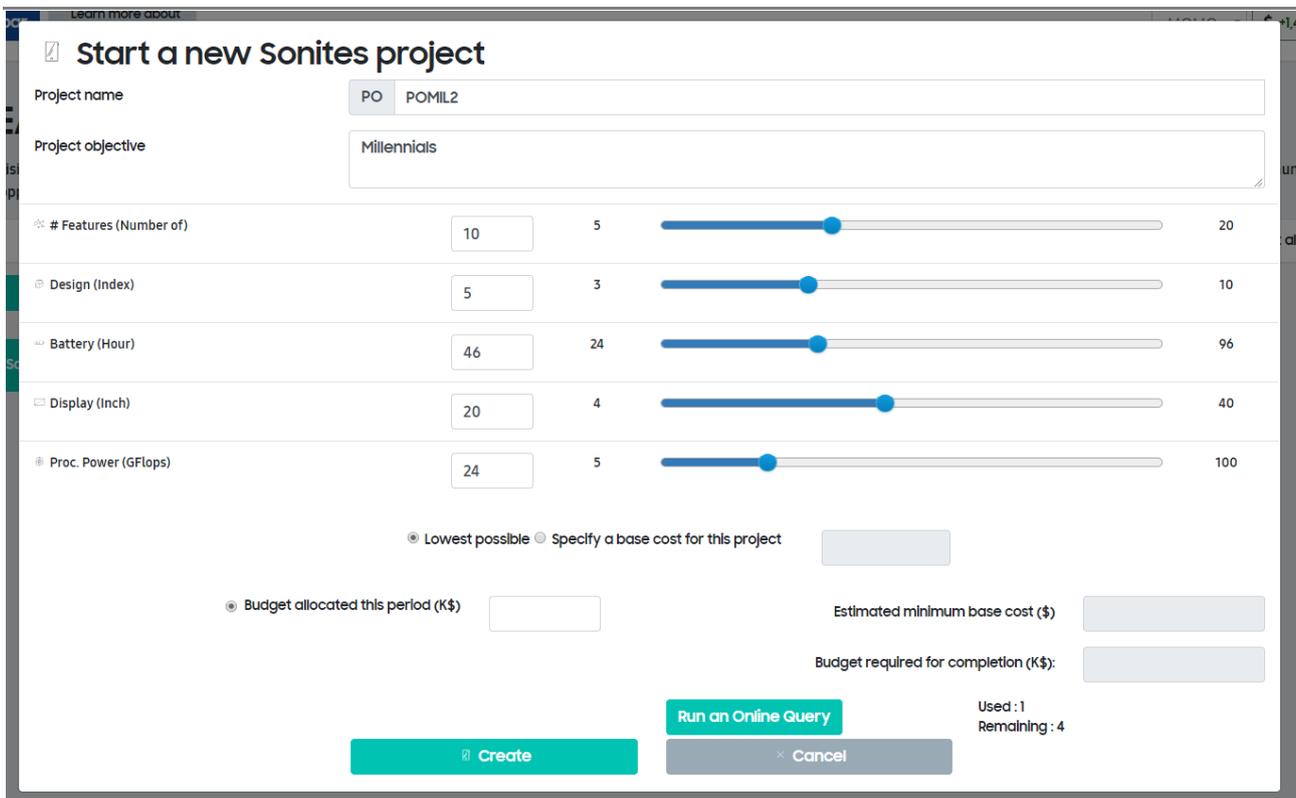


Figure 48 – R&D decisions – Launch a new R&D project

## E. Project characteristics and base cost

The form depicted in Figure 48 allows you to enter the *Project Characteristics* for the desired future product. The range of technically feasible characteristics for each attribute is indicated above, for instance from 24 to 96 hours of battery life.

The meaning of *Project Base Cost* is explained in detail in section III.10.C. You can ask the R&D department to seek the minimum base cost technically possible by checking the option *Develop this project at the lowest possible base cost*. Otherwise, check the option *Develop this project at the base cost specified below* and enter the desired cost for this project.

Note that the characteristics and base cost of continued projects cannot be changed.

## F. Project allocated budget and online query

The form depicted in Figure 48 allows you to enter the budget which you want to allocate to the project.

In the case of a continued project, the form tells you how much money is required to complete the project. Allocating this amount will guarantee project completion by the end of the current decision period.

To help you decide which budget to allocate, you may run an online query, as explained in section III.10.E. Upon completion of the query, an estimate of the budget required to complete the project will be given. Allocating this amount will guarantee project completion at the end of the current decision period. The form tells you how many queries you have done so far. Remember that the number of online queries authorized in a period is limited to 5 (unless this limit has been adjusted by your instructor).

If you change the physical characteristics of your project or the requested base cost after you have run the online query, the estimate provided by the query will not show up on the form as it is no longer valid. In this case, you should run a new query to adjust the estimate according to the new project specifications.

If you do not have sufficient funds, you may allocate a budget lower than the full amount indicated by the query. In this case, you have no guarantee that the project will be completed by the end of the decision period.

## 8. Initial decisions

When you start a new round, most decision pages are pre-filled with a copy of the decisions that you made in the previous period. In Period 1, decision pages are pre-filled with the decisions made by the previous management team.

Initial decisions are used by the model in case you do not submit new decisions in due time. Because the competitive situation changes each period, using the same decisions as in the previous period is usually not optimal. Hence, you are strongly encouraged to submit new decisions.

You will find below more details on how initial decisions are calculated.

- **Team Identity** – In Period 1, your company name is initially equal to your initial letter: M, S, L or H.
- **R&D** – All projects that have been *partially* developed in the previous period will be completed. This means that the budget required for completion is automatically allocated. If you wish to stop the development of a project, you need to *shelve* this project in the R&D decision page.
- **Product Portfolio** – All products marketed in the previous period will be marketed automatically in the new period. Products will *not* be launched or withdrawn automatically.
- **Marketing Initiatives**: All available initiatives are set to *not implemented*.
- **Marketing Mix** – The following decisions are copied from the previous period: production plan, price, advertising budget, segmentation strategy and communication objectives. Perceptual objectives are reset to *No Objectives*.
- **Digital Marketing**: All media strategies are not changed. Similarly, the strategies over medias and products is the same as in the previous period.

- **Sales Force & Commercial** – The size of your commercial team and budget allocation is not changed. Similarly, the allocation over channels and products is the same as in the previous period.
- **Market Research Studies** – The same studies as in the previous period are ordered.

Do not be surprised if a share of your marketing budget is already allocated when you start the decision round. This is due to the expenses corresponding to the initial decisions: completed R&D projects, advertising, sales force & commercial and market studies. When you change your decisions, these expenses will be changed accordingly.

## 9. Ordering Market Research Studies

This section focuses on how to use decision forms to order market research studies. Visit sections III.9 and IV.3 to learn more about the purpose and content of market research studies.

The market research studies decision form is displayed in Figure 49. All available studies are listed together with their costs. To purchase market studies, simply check the boxes that correspond to the studies you would like.

Click the *Decisions Home* button when you are done.

**Market Research Studies**

Indicate below which market research studies you want to purchase by checking the appropriate boxes. General studies apply to all markets while market-specific ones apply only to products in this market.

**General Studies**

<input checked="" type="checkbox"/>	Benchmark	\$38,750
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**Sonites Market**

<input checked="" type="checkbox"/>	Consumer Survey	\$77,500
<input checked="" type="checkbox"/>	Consumer Panel	\$129,250
<input checked="" type="checkbox"/>	Distribution Panel	\$77,500
<input checked="" type="checkbox"/>	Semantic Scales	\$13,000
<input checked="" type="checkbox"/>	Multidimensional Scaling	\$45,250
<input checked="" type="checkbox"/>	Market Forecast	\$25,750
<input checked="" type="checkbox"/>	Competitive Advertising	\$38,750
<input checked="" type="checkbox"/>	Competitive Commercial Team	\$19,500
<input checked="" type="checkbox"/>	Advertising Experiment	\$32,250
<input checked="" type="checkbox"/>	Commercial Team Experiment	\$45,250
<input checked="" type="checkbox"/>	Conjoint Analysis	\$45,250
<input checked="" type="checkbox"/>	Customer Centricity	\$38,750
<input checked="" type="checkbox"/>	Media Reporting	\$38,750

Order no Sonites studies | Order all Sonites studies

**Vodites Market**

<input checked="" type="checkbox"/>	Consumer Survey	\$51,750
<input checked="" type="checkbox"/>	Consumer Panel	\$90,500
<input checked="" type="checkbox"/>	Distribution Panel	\$64,500
<input checked="" type="checkbox"/>	Semantic Scales	\$13,000
<input checked="" type="checkbox"/>	Multidimensional Scaling	\$45,250
<input checked="" type="checkbox"/>	Market Forecast	\$25,750
<input checked="" type="checkbox"/>	Competitive Advertising	\$38,750
<input checked="" type="checkbox"/>	Competitive Commercial Team	\$19,500
<input checked="" type="checkbox"/>	Advertising Experiment	\$32,250
<input checked="" type="checkbox"/>	Commercial Team Experiment	\$45,250
<input checked="" type="checkbox"/>	Conjoint Analysis	\$45,250
<input checked="" type="checkbox"/>	Customer Centricity	\$38,750
<input checked="" type="checkbox"/>	Media Reporting	\$38,750

Order no Vodites studies | Order all Vodites studies

Figure 49 – Market research study decision form

## 10. Checking your decisions

We highly recommend checking your decisions regularly to make sure that the Simulation has not discovered any mistakes with your decisions. Two tools will help you verify your decisions: *Budget* and *Errors & Warnings*.

### A. Budget tool

Click on the budget overview in the top-right corner to access this tool.

The budget overview in Figure 50 provides details on how you have decided to spend your marketing budget in the upcoming period. The chart shows whether you have received a loan or budget increase from your instructor. It also calculates your expenditures in the four main cost categories: advertising, commercial team, research & development and market research. Finally, it shows your *Deviation from budget*, which should always be positive or equal to 0, unless you have been authorized by your instructor to exceed your budget. An error message will appear if the budget has been exceeded. This message should not be ignored; otherwise, the simulation will arbitrarily cut your expenditures (starting with advertising).

Another chart provides you with the breakdown of advertising and sales budgets by product. All numbers are given in thousands of dollars.

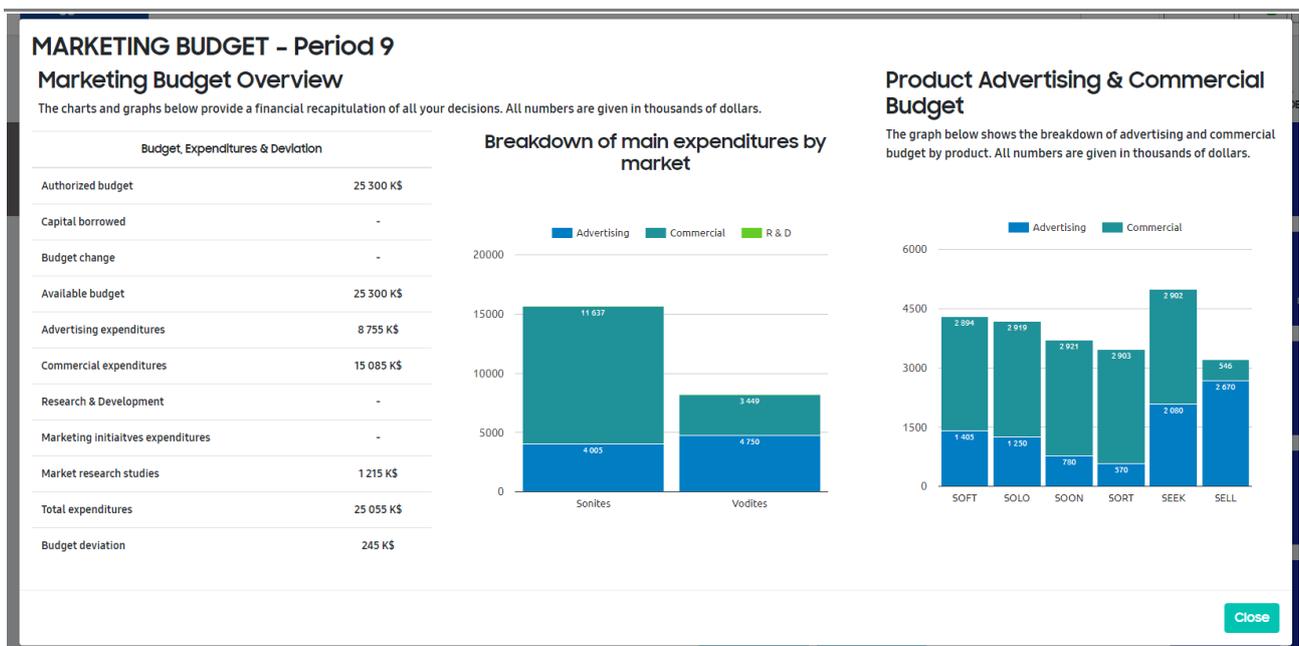


Figure 50 – Decision tools – Budget overview

## B. Errors & warnings tool

Click on the “errors & warnings” icon in the top-right corner to see errors and warnings generated by the simulation upon analysis of your decisions. Errors indicate corrections that should be made because of inconsistent decisions while warnings draw attention to possible problems. In these instances, you should check your decisions carefully to make sure that all entries are correct.

Typical errors include negative deviation from budget or missing marketing mix or commercial team decisions for newly launched products. Typical warnings include drastic changes in your decisions or completed R&D projects that have not been used to upgrade a product.

See Figure 51 for a sample Errors & Warning form.

Title	Message
 <p><b>Brand HOST : marketing mix decisions not made</b> From: Marketing Department</p>	<p><b>Title: Brand HOST : marketing mix decisions not made</b> From: Marketing Department</p>
 <p><b>Brand HOPE : marketing mix decisions not made</b> From: Marketing Department</p>	<p>You have not made the marketing mix decisions for product HOST. The decisions of the previous period will be replicated: same production level, same price, same advertising budgets and same segmentation strategy. No communication objectives will be specified. Please note that these decisions might not be optimal</p>
 <p><b>Brand HOOD : marketing mix decisions not made</b> From: Marketing Department</p>	
 <p><b>Brand HONO : marketing mix decisions not made</b> From: Marketing Department</p>	
 <p><b>Commercial Team : decisions not made</b> From: Commercial Department</p>	
 <p><b>Market research studies : decisions not made</b> From: Market Research Department</p>	
 <p><b>Brand portfolio: decisions not made</b> From: Management Board</p>	
<input type="button" value="Close"/>	

Figure 51 – Decisions – Errors & Warnings

## VI. POSITIONING AND RESEARCH & DEVELOPMENT

As you may expect, the market environment will change during the course of the simulation. The size and growth rate of consumer segments will evolve over time. Some segments will grow and thus become more attractive while others will shrink. This will be especially true for the new Vodite market that may be quite small initially but could become fairly big if companies introduce the right products at the right price. More importantly, the needs of customers will probably change over time. For example, some segments may want more powerful products while others may expect prices to decrease.

To respond to these changes, companies will have to introduce new Sonite or Vodite products and reposition or withdraw existing ones. As marketing resources are limited, it is extremely important to adopt optimal segmentation and positioning strategies, especially because a Simulation company cannot market more than five products in a given period in each market. Your department will be faced with the following strategic issues on market segmentation and product positioning:

- Which segments to target
- How to design products satisfying the needs of these segments
- How to position new products effectively
- How to reposition existing products to better fit customers' needs

Neither segmentation nor competitive strategies are addressed in this manual. Your Instructor may deliver conceptual sessions on these subjects during the course. You may also find useful information on these topics in your marketing textbook. In this chapter, we will assume that you have identified the consumer segment(s) that you want to target for a specific product, and we will describe the various approaches that can be used in Simulation to address product design and product positioning.

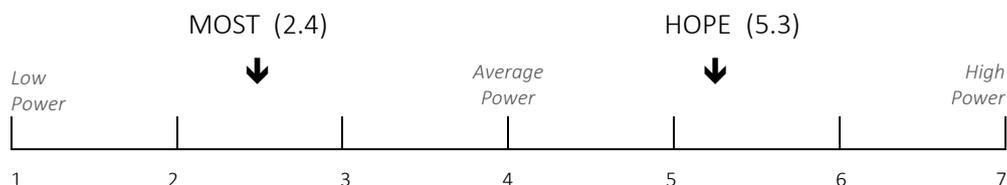
### 1. Assessing Perceptions and Preferences

Technical experts can easily classify marketed products based on objective data such as technical attributes and prices. However, consumers who are about to make a purchase are influenced by their perceptions of the products available on the market rather than by the actual features and properties of these products.

Perceptions are by definition subjective and can therefore be distorted from reality. The Simulation provides two market research studies to assess consumers' needs and estimate how products are perceived: the *Semantic scales* study and the *Multidimensional scaling* study.

#### A. Semantic scales

This study (presented in detail in Section IV.3.E) describes how consumers perceive the marketed products. Respondents are asked to rate the physical characteristics of each product on a scale from 1 to 7. In the example below, consumers have rated the product MOST at 2.4 on the Power scale because they perceive it as being less *powerful* than product HOPE, rated at 5.3.



The study also provides the *ideal* rating for each characteristic and each segment. The results of this study are shown in Figure 24 and

Ideal Values						
Respondents are also asked to indicate their preferred (also called "Ideal") value on each scale. The reported results are summarized in the table below, using the mean value for each segment.						
Segment	# Features	Design	Battery	Display	Proc. Power	Price
Tech Enthusiasts	6.3	6.3	6.4	6.3	6.2	6.1
Baby Boomers	2.1	2.7	3.1	3.9	4.1	3.3
Gen-X	4.1	5.4	5.8	5.2	5.2	5.6
Millennials	3.0	4.8	3.6	4.5	4.4	4.7
Gen-Z	2.7	3.9	1.8	2.6	2.1	3.0

Figure 25. By comparing the perceived ratings of your product with the ideal ones for a given segment, you can determine if this product fits the needs of consumers in that segment.

## B. Multidimensional scaling of products similarities and preferences

This study also describes how consumers perceive the marketed products. Its content is presented in detail in section IV.3.G. It shows a three-dimensional map exposing the similarities and differences between marketed products. This map is a graphical representation of the respondents' ratings, i.e. the distance between two products is small for similar products and large for dissimilar products. A sample perceptual map is depicted in Figure 27.

The three dimensions Economy, Performance and convenience can be related to the actual physical characteristics as shown in Figure 28. Finally, respondents are asked to indicate their ideal position on the map.

## 2. Prediction of Ideal Points

Ideal points, also called preferences, represent the needs of consumers in a given segment. They are calculated by averaging the individual responses of all respondents. As explained in the chapter introduction, consumer needs are likely to evolve over time. This may be due to changes in the environment, to new trends, or to new ways to use Sonites and Vodites products. Consumer needs are also influenced by the actions of competitors (for instance new products introductions and large-scale advertising campaigns).

None of these reasons will create the conditions for drastic changes in consumer needs. On the opposite, the tracking of the position of ideal points on the map shows that this evolution is fairly gradual and regular. Two charts are available to help you predict where ideal points will be in future periods.

- The table depicted in Figure 52 is included in the Multidimensional Scaling study as of Period 2. A similar table is also included in the Semantic Scales study. Positions are tracked over only three periods, but you may use the graphs described in the next paragraph to obtain a longer tracking.
- The graph depicted in Figure 53 is included in the additional graphs available both in the Semantic Scales and Multidimensional Scaling studies. It shows the evolution of ideal points since the beginning of the simulation. The latest data point is the one with the strongest color. All dimensions can be plotted by using the choice boxes on the left-hand side.

Ideal Value Evolution				
This study monitors the evolution of consumer needs over time. The preferred values on each perceptual map dimension over the past (3 years maximum) are recorded in the table below, for each consumer segment.				
Segment	Period	Economy	Performance	Convenience
Baby Boomers	Period 1	4.9	-1.6	-11.6
Baby Boomers	Period 2	4.8	-1.0	-10.5
Baby Boomers	Period 3	4.7	-0.5	-9.4
Gen-X	Period 1	-11.2	7.6	10.4
Gen-X	Period 2	-11.1	7.9	9.5
Gen-X	Period 3	-11.0	8.0	9.0
Gen-Z	Period 1	9.5	-12.3	-4.5
Gen-Z	Period 2	8.2	-12.1	-4.4
Gen-Z	Period 3	7.4	-11.9	-4.3
Millennials	Period 1	-3.3	2.4	3.3
Millennials	Period 2	-3.9	2.6	2.8
Millennials	Period 3	-4.4	2.7	2.3
Tech Enthusiasts	Period 1	-15.5	14.8	15.9
Tech Enthusiasts	Period 2	-15.0	14.8	15.8
Tech Enthusiasts	Period 3	-14.5	14.8	15.6

Figure 52 – MDS Study – Ideal value evolution – Table

Using these charts, you can interpolate where ideal points will be located in few periods time. This is an important step in your positioning strategy. Indeed, you want to choose a position for your product that will be close to the needs of consumers for several periods. In addition, you should consider the time it will take to reach this position, especially if a research project is necessary. Hence, you probably need to look 2 or 3 periods ahead of time, if not more.

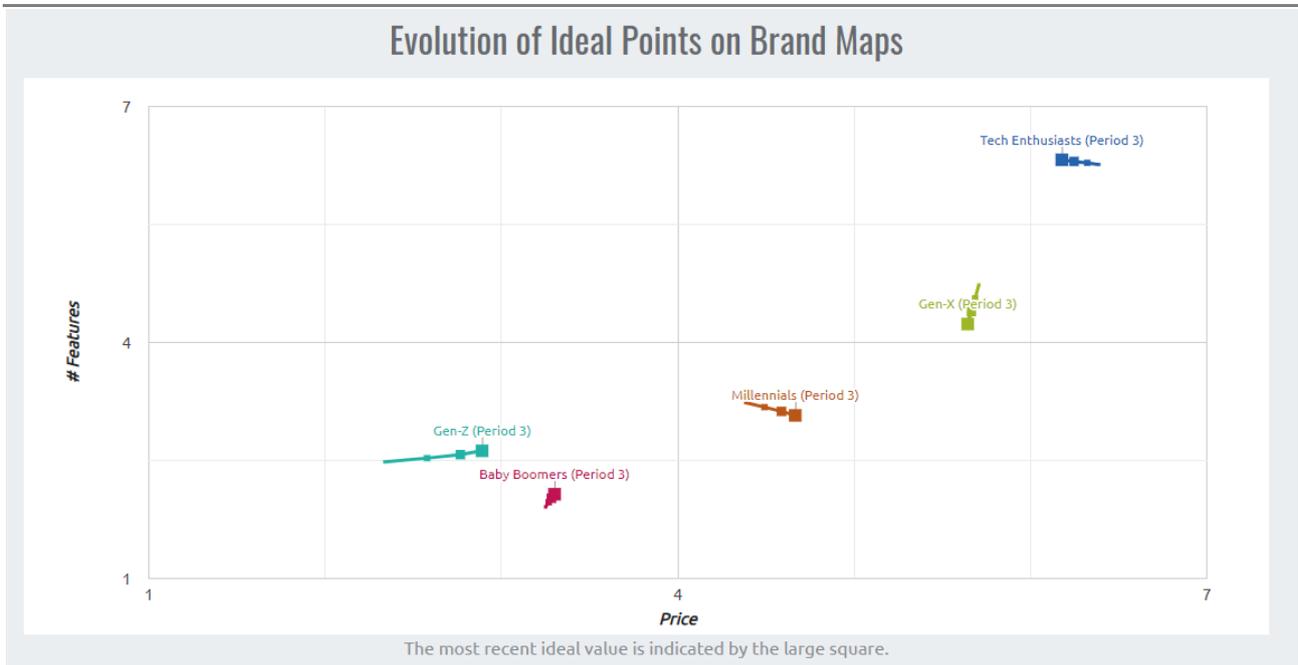


Figure 53 – Semantic Scales Study – Ideal value evolution – Graph

### 3. Matching product attributes with position

We now assume that the coordinates where the product should be positioned are known. The next step is to find the physical characteristics that correspond to the desired position on the map. Several solutions are available.

The easiest solution is to find a product that is located at a position close to the desired one, and to look at its characteristics in the chart in Figure 9. If such a product exists, then all you have to do is copy the level of this product along the desired attributes. This analysis may be done attribute by attribute, looking at different products. You may copy the processing power of product A because it is very well positioned on the map along the Power axis, and copy the Battery Life of product B.

If no such products exist, then you will have to interpolate, using the best positioned products on the market. The interpolation may be done using the semantic scales data or the multidimensional scaling ones.

#### A. Using semantic scales

Let's suppose that you want to determine the processing power (in gigaflops) that corresponds to the coordinate 5 on the 1 to 7 scale.

A graph such as the one depicted in Figure 54 will facilitate the interpolation process. This graph is available in the additional graphs, accessible through a link at the top of the study. It is obtained by plotting the actual characteristics of all marketed products on the horizontal axis and the corresponding perceptions on the vertical axis. Each marketed product corresponds to a data point on the graph. There is one such graph for each dimension: processing power, display size, etc. The segment ideal values are indicated on the vertical axis.

Doing the interpolation is straightforward with this chart. Simply plot the desired coordinate on the vertical axis, 5 in our example. Follow a horizontal line until you intersect the green curve, and then follow a vertical line starting at the point of intersection. You can now read the physical characteristic (in gigaflops) corresponding to the desired position 5. This is 69 in our example.

The curve on our example is almost a straight line. This is not always the case, especially when several products have been positioned or repositioned on the market using perceptual objectives.

Repeat the process above for each dimension for which you need to find the physical characteristic corresponding to a desired coordinate.

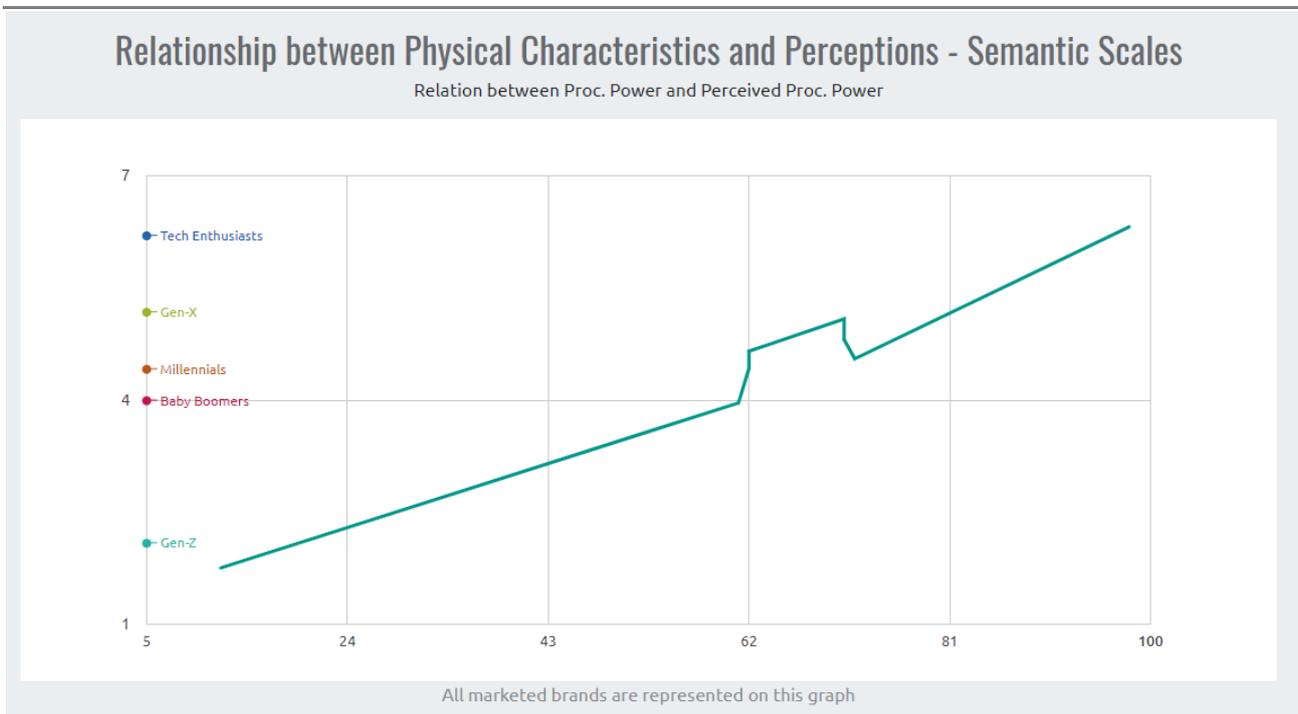


Figure 54 – Relationship between attributes and perceptions – Semantic scales study

## B. Using multidimensional scaling

Let's suppose that you want to determine the processing power (in gigaflops) that corresponds to a performance of 10 on the scale -20 to +20.

A methodology similar to the one applied to semantic scales can be used with multidimensional scaling data. The main difference is that there is not a one-to-one relationship between MDS dimensions and physical characteristics. Instead, each dimension is related with two or more physical attributes. For instance, performance is strongly linked with processing power and display size. Hence, the desired coordinate in performance will be used in two interpolations, one to determine the matching processing power and one to determine the display size.

A graph such as the one depicted in Figure 55 will facilitate the interpolation process. This graph is available in the additional graphs, accessible through a link at the top of the study. It is obtained by plotting the actual characteristics of all marketed products on the horizontal axis and the corresponding perceptions on the vertical axis. Each marketed product corresponds to a data point on the graph. There are 18 such graphs, one for each couple "physical characteristic × MDS dimension"; for instance, Processing Power × Performance, Display Size × Performance, etc. The segment ideal values are indicated on the vertical axis.

Some of these charts are meaningless. For instance, the graph Design × Performance is unlikely to provide useful information as Design is not related to Performance. Obviously, you should not use performance to determine a level in Design or Battery Life because these dimensions are not related to one another.

Doing the interpolation is straightforward with the appropriate graph. Simply plot the desired coordinate on the vertical axis, 10 in our example. Follow a horizontal line until you intersect the green curve, and then follow a vertical line starting at the point of intersection. You can now read the physical characteristic (in gigaflops) corresponding to the desired position 10. This is 82 in our example.

The curve on our example is not exactly a straight line. This is the case when several products have been positioned or repositioned through advertising and perceptual objectives. Some readings are more difficult to

do; for instance, a desired coordinate of 5 gives a characteristic comprised between 60 and 68 gigaflops. In such a case, you will have to use your judgment. This is also true in case the Semantic Scales study and the MDS one give two different readings.

Repeat the process above for each dimension where you need to find the physical characteristic corresponding to a desired coordinate.

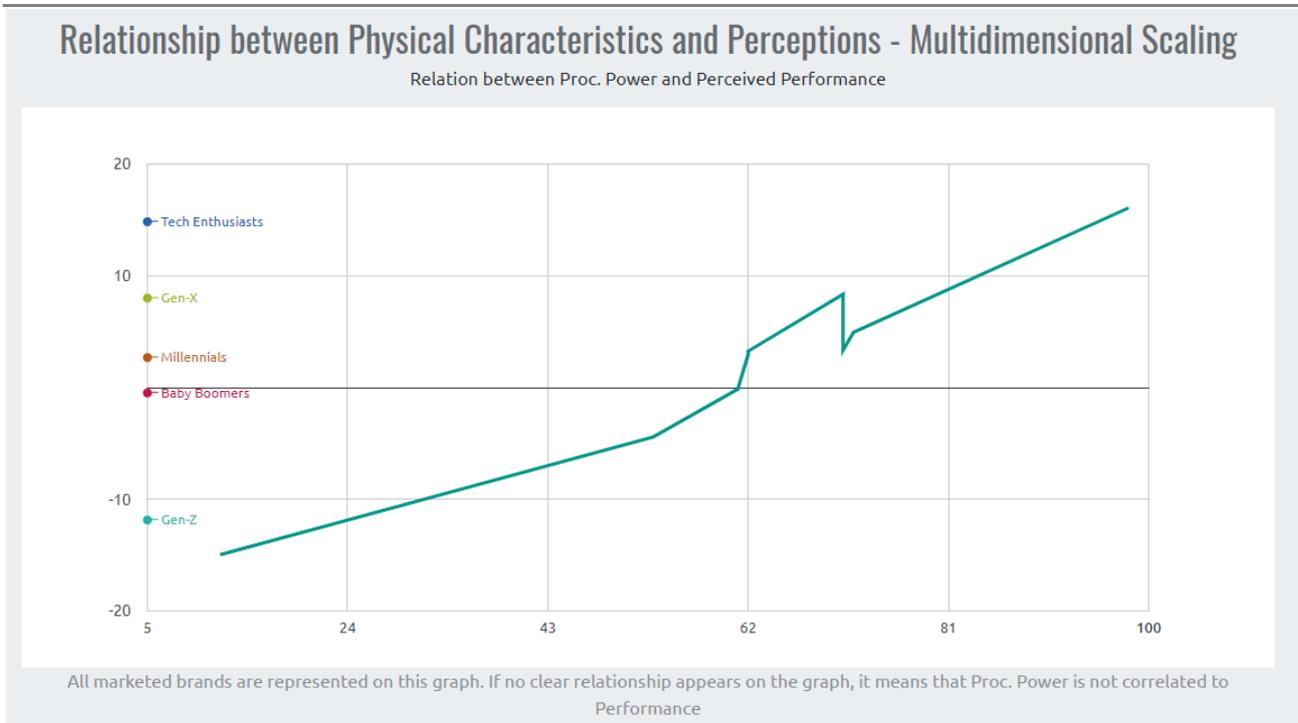


Figure 55 – Relationship between attributes and perceptions – MDS study

### C. Case of a new market

The perceptual map is not available when no products are marketed. However, you may still obtain information on segment needs from the semantic scales study. Let’s take an example and assume that *Innovators* consumers have indicated that they are looking for products with a large number of *Apps*, i.e. their ideal point is at 5.5 on the 1 to 7 scale. Our best option is to assume that there exists a linear relationship between the number of *Apps* (from 5 to 100) and semantic scales, i.e. that the lowest number of *Apps* (5) would be rated 1, and that the highest number (100) would be rated 7. In this case, the formula to convert the ideal 5.5 into a number of *Apps* is:

$$X = 5 + \left[ (100 - 5) \times \frac{5.5 - 1.0}{7.0 - 1.0} \right] = 76 \text{ Apps (rounded to the nearest whole number)}$$

The general formulas are:

$$P = 1.0 + \left[ 6.0 \times \frac{X-LB}{UB-LB} \right] \quad \text{or} \quad X = LB + \left[ (UB - LB) \times \frac{P-1.0}{6.0} \right]$$

where P is the desired value on the 1 to 7 scale; X is the corresponding physical level; and LB and UB are the lower and upper limits of the physical characteristic’s feasible range.

This method, although imperfect, allows you to make approximations until more data becomes available over time.

## 4. Situations where repositioning is required

Ideal points on the perceptual map or on the semantic scales’ chart, reflects the needs of consumers, or the price that they are ready to pay to get a product that fits their needs. *For a given product and a given segment,*

the optimal position on the map is as close as possible to the ideal point of that segment. Indeed, we have explained in section II.1 why offering a level higher than the ideal one is not necessarily better.

However, there are several reasons why products are not always ideally positioned:

#### A. Changing segment needs

We have already mentioned several times that segment needs evolve over time, due to changes in the environment or in consumers' values and behaviors. Consequently, a product which was well positioned when it was introduced to the market may be perceived as *low-performance* or as *having an unnecessarily high number of features* a few periods later. Period after period, the distance on the map between the product and the ideal point becomes greater and greater.

#### B. Price pressure

This situation is similar to the previous one. As price is the most important dimension in the Sonite market, manufacturers should expect pressure from consumers to lower prices, especially in the low-end segments. Again, if product prices are not adjusted accordingly, the distance between the product and the ideal point along the price or economy axis is likely to increase.

#### C. New target segments

For a new market in its early stages, a good strategy may be to serve several segments with a single product. This situation may occur if the needs of two segments are fairly similar or if one segment is too small to allow the necessary economies of scale. Then, as these needs change, or as the segment size increases, it may become necessary to position one product closer to each ideal point.

#### D. Competitor entry

In the absence of competition, one firm may successfully serve consumers with a product that is not exactly adapted to their needs. Then, if a competitor introduces a new product that fits these needs better, it may become necessary to reposition the old product closer to the ideal point.

In all the above situations, products must be repositioned to adapt to new environmental conditions; however, a product does not always need to be repositioned on all dimensions. For instance, a two or three-year-old product may be perceived as low-performance, but as having the right convenience level. In this case, there is no reason to change the perception along the convenience dimension. Repositioning can be achieved by changing the product's price, through advertising or via R&D.

### 5. Repositioning strategies

Repositioning can be achieved by advertising or by research & development. Although consumers' perceptions are linked to the product's physical characteristics, they can be slightly influenced by communication. But the repositioning effect is limited; this is especially true when the product awareness level is high, because a product with which consumers are extremely familiar is more difficult to reposition. Beyond a certain level, product repositioning can no longer be done by advertising alone. At this point one must complete an R&D project with physical characteristics matching consumers' needs, and then to upgrade the product. R&D projects will take at least one period to complete, while repositioning through advertising has an immediate effect.

#### A. Positioning with Advertising

Advertising in Simulation is mainly used to build product awareness and to inform customers about products' physical characteristics, but it can also be used to reposition a product. Using advertising to reposition a product is a four-step process:

- Identify your desired position on the perceptual map or on the semantic scales' chart (for example, to reposition a product closer to the *Gen X* segment along dimensions *Battery Life* and *Processing Power*, first estimate the future ideal positions of that segment on these two dimensions, as explained in section VI.2).
- Enter the coordinates identified in the previous step in the *perceptual objectives* for the product when making *Marketing Mix* decisions, as explained in section 0. You can choose to set perceptual objectives

based on either semantic scales or MDS dimensions. Select the two chosen dimensions and enter the coordinates of the point that you want to reach. A maximum of two dimensions may be specified to keep the message simple and effective. Actually, there is no reason to communicate on two dimensions if repositioning is required on only one dimension; in such a case, select *None* for the second dimension and your communication message will be even clearer.

- Allocate an advertising media budget for the product, to buy media space and time, and an advertising research budget. The effect of advertising research is two-fold. First, it makes your advertising campaign more effective, by a better selection of media and a better design of the advertising copy. Second, the repositioning impact will be higher in terms of reaching the perceptual objectives, although there will naturally be a limit as to how far and how fast advertising can change perceptions. It is considered that between 10% and 15% of your total advertising budget should be spend in advertising research for an effective repositioning to take place.
- Indicate how you want to allocate your advertising budget across consumer segments. The targeted segments must be consistent with the perceptual objectives that you have set. Please note that this decision alone is not sufficient to reposition a product. Indeed, targeting specific segments is mainly done by selecting the most appropriate media to communicate the message, but it has little effect on the *content* of the message.

Finally, you will have to implement the same type of advertising program when you change the physical characteristics of a product or when you change its price significantly.

## B. Positioning through Research & Development

As explained before, a product must be repositioned through R&D when the distance between the desired position on the perceptual map – or on the semantic scales' chart – and the product is too large. Research and development must also be used to introduce new products, since all marketed products must be based on R&D projects.

Using R&D to reposition a product or to introduce a new one is a four-step process:

- Identify the desired position on the perceptual map or on the semantic scales chart.
- Estimate the physical characteristics that correspond to this desired position (as explained in section VI.3).
- Develop an R&D project with the physical characteristics calculated above. This is done in cooperation with the R&D department as explained in section III.10.
- Introduce a new product or launch a new model of an existing one. Completed R&D projects can be used to reposition existing products with new models by modifying the physical characteristics that are the basis of consumers' perceptions. They can also be used to introduce new products. In both cases, a coherent advertising campaign will have to be implemented at the same time to inform consumers about these changes.

Note that this process will take at least one period.

## 6. Research & Development

This section is a complement to section III.10 on the interface between Marketing and Research and Development. More details are given here on how to choose the target base cost of a project, and on the lifecycle of R&D projects, from design to completion.

### A. Project base cost

When designing a project, the Marketing department must specify the target manufacturing unit cost of the desired product. Because this cost decreases over time with experience, the Marketing and R&D department have agreed to specify the transfer cost of the first 100,000 units of the new product. This cost is called the *Base cost*.

Base costs have no upper limit. If you indicate a high base cost, the R&D department will have more flexibility in finding the appropriate materials and manufacturing processes. Consequently, the project is easier to develop, and is less expensive in terms of the total development budget.

The lower limit of the base cost for a given project depends on its technical specifications: the more sophisticated a product is, the higher the minimum base cost will be. The higher the level of each attribute (Processing Power, Display Size, etc.), the higher the minimum unit cost. There is one exception to this rule: unit cost will increase if you try to reduce the carbon footprint of your product.

One strategy for choosing a base cost is to request that the R&D department develop the project at the minimum cost. This solution is highly attractive in terms of margins, but may be more expensive overall since its development budget is likely to be much higher than alternatives.

Another solution is to calculate the highest base cost economically achievable. You start from the *desired* or *ideal* price of the targeted consumers, i.e. the price that consumers are willing to pay for a product fitting their needs. The base cost is then obtained by subtracting the average distributor's margin plus the margin that will make the future product economically attractive for you to market (including advertising and commercial team costs). A base cost calculated this way will be higher than the minimum one in many cases.

Finally, you may order a feasibility study to obtain an estimate of the minimum base cost and of the required development budget. Feasibility studies cost \$100,000 and take one period to complete.

## B. Budget required for completion

An R&D project includes the research work necessary to develop a prototype of the desired product and the development work necessary to find potential suppliers and set up manufacturing processes. Your department must allocate a budget to each project to cover these R&D expenses. When the project is completed, the production department is ready to produce the first units of the product at the transfer cost specified in the R&D report, assuming a first production batch of 100,000 units.

The budget required for the completion of a project is a function of several parameters. The budget depends on the requested physical characteristics: the more sophisticated the future product, the higher the budget. It also depends on the experience of the firm with comparable products, i.e. on the number of projects completed in the past with similar characteristics. Finally, the development budget depends on the base cost requested, as explained in the previous section. Note that the R&D department is managed as a profit center, and will not reimburse you if you allocate exceedingly high budgets.

The budget required to complete a project may be estimated through an online query, as explained in section III.10.E.

## C. Responses from the R&D department

All the R&D projects which the firm has worked on in the previous periods are listed in the R&D section of the Company Results. The report details completed and uncompleted projects, including the two projects which existed at the beginning of the simulation. A typical report is shown in Figure 14.

Let's use the following example to illustrate the possible responses from the R&D department after one period of development. The table in Figure 56 summarizes the responses for a new project with identical physical characteristics but with four different requested levels of base cost and allocated budget.

The figure in the middle, *Normal budget for completion*, is calculated by R&D at an early stage of the project. This figure is internal to the R&D department and is not disclosed to Marketing. It is the same in case A and B, or in cases C and D, because it depends on the technical specifications and on the requested base cost. The project will be completed only if the allocated budget is greater than or equal to the normal budget. This is what happens in cases A and C. Note that the extra budget (\$200k in case A and \$450k in case B) is not given back to Marketing.

The project is completed in case A despite the fact that the base cost specified (\$80) was below the minimum base cost (\$110); it was automatically adjusted, and the project is successfully developed at the minimum base cost.

Note that the *Minimum base cost* is the same in all cases because it only depends on the technical specifications. For case C, the Marketing department could decide to immediately launch a cost reduction project, so as to complete a new project with the same physical characteristics and a base cost of \$110.

Uncompleted R&D projects may be continued the following period or may be suspended (*shelved*) for one or several periods. If you choose to never continue the project, the budget allocated so far is lost. The technical characteristics of a continued project may not be changed from their original values.

		Case A	Case B	Case C	Case D
Project specifications	Number of Features (Kg)	17	17	17	17
	Design (Index)	6	6	6	6
	Battery Life (Hour)	85	85	85	85
	Display Size (")	35	35	35	35
	Processing Power (Gflops)	70	70	70	70
	Requested base cost	\$80	\$80	\$130	\$130
	Allocated budget	\$1 000k	\$300k	\$1 000k	\$300k
<i>R&amp;D Internal Data</i>	<i>Normal budget for completion</i>	<i>\$800k</i>	<i>\$800k</i>	<i>\$550k</i>	<i>\$550k</i>
Response from R&D at end of period	Minimum Base Cost	\$110	\$110	\$110	\$110
	Project successfully completed	Yes	No	Yes	No
	Current base cost	\$110	\$110	\$130	\$130
	Minimum base cost	\$110	\$110	\$110	\$110
	Additional budget for completion	-	500k	-	250k

Figure 56 – Interface with R&D department

#### D. Product introduction, new models or withdrawal

R&D projects may be used as soon as they are completed to launch new products or new models of existing ones. They may also be shelved for future use. Product portfolio decisions are summarized below and are detailed in section V.1.

A new product is introduced on the market by entering a product name which has not been used in the past. This product name is completely independent of the code used for the R&D project. A new model of an existing product is modified by keeping its current name with the model number (2,3,4...) and using the physical characteristics corresponding to a new completed project. Using a new product name will facilitate the product's positioning, but its product awareness will have to be completely built from scratch. Using an existing product name makes its repositioning more difficult, since consumers are familiar with the product at its previous position. However, as the awareness level is maintained, the product's purchase intentions are likely to be higher than with a new product.

The same product can be marketed under different names. The presence of multiple products targeted at the same segment is a good strategy to build barriers to entry of new products by competitors. A company may also market multiple products based on the same project to different segments which are willing to pay different prices while having similar technical needs.

When a product is withdrawn, obsolete inventories are sold by the Production department to a trading company at a fixed percentage of their value, usually 80%. This company will then export the old products outside the Simulation world. Consequently, a loss of x% (the given percentage) of the inventory value is charged to the marketing department.

## VII. USERS'S GUIDE TO THE MARKETING PLAN TOOL

The marketing plan section is a useful tool to check the consistency of decisions and to easily anticipate their possible financial consequences. It will help you estimate your revenues, expenditures and contribution for the decision period. The principle is to first estimate the retail unit sales of your products, and then to use your current decisions – prices, advertising expenditures, commercial team size and allocation, etc. – to calculate all the other figures, from revenues to contribution.

The marketing plan tool is **not** based on a Simulation mathematical model. It is a sophisticated spreadsheet that uses the information **you** provide to make the calculations. Many facets of the environment may change unexpectedly, including consumer needs or competitive actions. Other aspects directly controlled by the firm may not be properly incorporated or may be overlooked. As a result, if you input highly optimistic (or pessimistic) product market shares or segment sizes, then the tool will give you highly optimistic (or pessimistic) results.

The marketing plan built-in assistant will guide you through five steps: (1) estimating consumer segment sizes; (2) estimating the shares of your marketed products in each of these segments; (3) calculating product sales; (4) calculating product revenues and contribution; and (5) calculating firm consolidated revenues and profit.

The actual product contribution and company performance statements for the next period may be quite different from the pro forma projections obtained from the plan. An important role of the marketing plan is to provide a tangible basis to learn over time. The financial statements in the marketing plan (steps 4 & 5) are in the same format as in your annual report. This makes it easy to compare between the anticipated projections and the actual results when they are obtained. A systematic analysis of the sources of variance between the two documents will help you learn both about the market mechanisms and about the planning process. In the long-term, this learning dimension is probably the most important contribution of the marketing planning process.

### 1. Step 1 – Segment size estimates

The first estimates you must provide as input to the marketing plan concern the size (in thousands of units) of each consumer segment. There are two tables to fill in, one for each market. They are initially filled in with the sizes of the segments from the previous period. Segment growth rates are calculated as you enter new values in the cells. See Figure 57.

You must enter your own estimates of segment sizes for the next period. Two automated estimation approaches are available. You can click on the *Copy past period data* button to use segment sizes from the previous period or click on the *Copy market forecast data* button to use the segment size projections from market research. The second alternative is available only if the corresponding study has been purchased.

These two automated approaches provide a basis on which individual adjustments can be made based on your experience. Indeed, you will realize that actual market sizes depend on several factors: introduction of powerful products; price changes; production shortages of preferred products; commercial team sizes, etc. You should thus take into account your own moves as well as the anticipated moves of your competitors.

		Sonites Market					Vodites Market		
		Tech Enthusiasts	Baby Boomers	Gen-X	Millennials	Gen-Z	Innovators	Adopters	Followers
Segment size		148	113	549	890	760	68	83	53
Segment growth		-8.1%	-8.3%	-3.1%	7.1%	12.2%	13.5%	53.6%	236.6%
						Copy last period data			
						Copy market forecast data			

Figure 57 – Marketing Plan – Segment size estimates

## 2. Step 2 – Market share estimates

One of the most important aspects of marketing planning is the anticipation of the market response to a specific set of decisions or actions. In this form, expected market shares must be entered for each product in each segment, as shown on Figure 58. There are two tables to fill in, one for each market. They are initially filled in with the market shares from the previous period for existing products, and with 0 for newly launched products.

When making these estimates, make sure to take into account your own decisions as well as the most likely ones of your competitors. In particular, your product introductions or upgrades and the expected ones from competitors should be examined closely to best estimate their effects on your product market shares.

		Sonites Market				
		Tech Enthusiasts	Baby Boomers	Gen-X	Millennials	Gen-Z
SOFT		8%	3%	35%	3%	1%
SOLO		2%	5%	2%	23%	1%
SOON		0%	1%	0%	0%	18%
SORT		24%	1%	1%	0%	0%
						Copy last period data

		Vodites Market		
		Innovators	Adopters	Followers
SEEK		50%	20%	30%
SELL		50%	80%	70%
				Copy last period data

Figure 58 – Marketing Plan – Market shares estimates

## 3. Step 3 – Product sales

This form calculates your product unit sales, by consumer segment and in total. These numbers allow you to check the consistency of the estimates you entered in steps 1 and 2. For instance, if you realize that the sales of a given product will more than double according to your estimates, you may want to go back to the steps 1 and/or 2 to check where you have been too optimistic.

This form is also useful to check the consistency of your production plan decisions. Indeed, the process suggested in steps 1 and 2 is usually pretty accurate to predict sales. Hence, you may use this process to

estimate how many units you need to produce. Make sure to take your existing inventory into account when inputting production plans.

Marketing Plan						
Segment Size Estimates	Market Share Estimates	Market Sales Estimates	Product Contribution	Company Profit & Loss Statement		
You may review below the estimate of potential sales next period for each product in each consumer segment and in total. These estimates are calculated based on the data provided in steps 1 and 2.						
 <b>Sonites Market</b>						
	 Tech Enthusiasts	 Baby Boomers	 Gen-X	 Millennials	 Gen-Z	Total
SOFT	11,840	3,390	192,150	26,700	7,600	241,680
SOLO	2,960	5,650	10,980	204,700	7,600	231,890
SOON	0	1,130	0	0	136,800	137,930
SORT	35,520	1,130	5,490	0	0	42,140
 <b>Vodites Market</b>						
	 Innovators	 Adapters	 Followers			Total
SEEK	34,000	16,000	15,900			66,500
SELL	34,000	66,400	37,100			137,500

Figure 59 – Marketing Plan – Market sales estimates

#### 4. Step 4 – Product contribution

Based on your decisions and your estimates for segment sizes and product shares, the marketing plan tool can make financial projections for the decision period. This form, depicted in Figure 60, shows a pro forma product contribution statement, similar to the one in your annual report. All calculations are explained below:

- (a) **Estimated sales:** The estimated product sales based on your market shares (input in step 2) regardless of your production plan decisions.
- (b) **Beginning inventory:** Inventory at the beginning of the period.
- (c) **Production plan:** Your production plan (taken from your decisions).
- (d) **Actual production:** The product production considering the adjusted production (default +/- 20%)
- (e) **Ending inventory:** Inventory at the end of the period equal to (b) + (c) - (f). If the value is in orange, it means that you will have an inventory for the next year.
- (f) **Final sales:** Product sales considering your production plan decision and your inventory at the beginning of period. Equal to Minimum between (a) and (d) + (b). If the value is in red, it means that your production and your inventory is not enough to cover all estimated sales.
- (g) **Revenues:** Equal to estimated unit sales × (price – distribution margin), where the distribution margin is calculated based on segment shopping habits, if you have purchased the corresponding study, or is calculated as the average margin of all channels otherwise.
- (h) **Cost of goods sold:** Equal to estimated unit sales × unit cost, where the unit cost is calculated using the same formula as the one in the Simulation model; this formula takes the experience effect into account, as explained in the Productivity Gains section.
- (i) **Inventory holding cost:** Equal to units in inventory × unit cost × %IHC, where IHC is a factor (usually equal to 8%) that may be customized by your instructor.
- (j) **Inventory disposal loss:** Equal to the number of units disposed of × unit cost × %IDL, where IDL is a factor (usually equal to 20%) that may be customized by your instructor. Inventory disposal loss occurs when a product is upgraded.
- (k) **Contribution before marketing:** Equal to (g) – (h) – (i) – (j).
- (l) **Advertising media:** Equal to the budget allocated in your decisions.
- (m) **Advertising research:** Equal to the budget allocated in your decisions.

(n) **Commercial team costs:** Calculated based on your decisions, using the cost of a commercial team person for the decision period; this cost is given in the report entitled *Market & Competitive News*.

(o) **Contribution after marketing:** Equal to (k) – (l) – (m) – (n)

This form allows you to check if your product will be profitable next year and how much contribution it will generate. It may also help you improve your product result. Here are a few points to investigate.

How can you improve your top line?

- If the product is not right, should you launch an R&D project to improve your product characteristics?
- Should you increase price to raise your profitability or should you decrease your price to align on competition and get a bigger market share?
- Should you specify perceptual objectives to improve your positioning?
- Should you increase your marketing efforts (advertising & commercial team)?
- Should you focus these efforts on a single consumer segment or should you try to reach two or even three segments to target more consumers?
- Etc.

How can you reduce your costs?

- Should you launch a cost-reduction R&D project to reduce your COGS?
- Should you lower your production plan to get rid of your existing inventory?
- Should you, on the opposite, increase your production to benefit from the experience effect? This is usually a good idea for new product launches in markets or consumer segments with low volume.
- Is your awareness high enough so that you can reduce advertising spending?
- How does your commercial team compare to the ones of your competitors? Do you really need such a large number of people?
- Etc.

Marketing Plan							
Segment Size Estimates	Market Share Estimates		Market Sales Estimates		Product Contribution		Company Profit & Loss Statement
The table below shows the volume sales and contribution after marketing generated by the 6 products marketed in Period 8. The figures below are calculated from the estimates provided in the previous steps and from your current decisions. All numbers from "Estimated sales" to "Final sales" are given in units. All numbers from "Revenues" to "Contribution after marketing" are given in thousands of \$.							
	SOFT	SOLO	SOON	SORT	SELL	SEEK	
	Sonites	Sonites	Sonites	Sonites	Vodites	Vodites	
<b>Production</b>							
Estimated sales	241680	231890	137930	42140	137500	66500	
Beginning Inventory	12880	3402	46951	47758	0	0	
Production plan (from decisions)	270000	280000	180000	40000	150000	175000	
Actual production	228800	228488	144000	32000	137500	140000	
Ending Inventory	0	0	53021	37618	0	73500	
Final sales	241680	231890	137930	42140	137500	66500	
<b>Revenues</b>	\$76,613 k	\$66,321 k	\$29,241 k	\$13,401 k	\$120,450 k	\$62,178 k	
Cost of goods sold	\$-20,676 k	\$-17,369 k	\$-6,595 k	\$-7,915 k	\$-33,306 k	\$-13,870 k	
Inventory holding cost	\$0 k	\$0 k	\$-203 k	\$-565 k	\$0 k	\$-1,226 k	
Inventory disposal loss	\$0 k	\$0 k	\$0 k	\$0 k	\$0 k	\$0 k	
Contribution before marketing	\$55,936 k	\$48,952 k	\$22,443 k	\$4,920 k	\$87,144 k	\$47,082 k	
Advertising media	\$-1,350 k	\$-1,200 k	\$-750 k	\$-550 k	\$-2,350 k	\$-2,000 k	
Advertising research	\$-55 k	\$-50 k	\$-30 k	\$-20 k	\$-320 k	\$-80 k	
Commercial team costs	\$-2,885 k	\$-2,911 k	\$-2,912 k	\$-2,894 k	\$-538 k	\$-2,894 k	
Contribution after marketing	\$51,646 k	\$44,791 k	\$18,751 k	\$1,456 k	\$83,937 k	\$42,108 k	

Figure 60 – Marketing Plan – Product contribution statement

## 5. Step 5 – Firm Profit and Loss statement

Based on your decisions and your estimates for segment sizes and product shares, the marketing plan tool can make financial projections for the decision period. This form, depicted in Figure 61, shows a pro forma firm profit and loss statement, similar to the one in your annual report.

The lines from *Revenues* to *Contribution after marketing* are obtained by summing the columns in the previous form *Product contribution*. The other lines are explained below:

(a) **Market research studies:** Equal to the total cost of the market studies ordered in your decisions; the cost of each study is given in the *Market studies* decision form.

(b) **Marketing Initiatives:** Equal to the total cost of the marketing initiatives implemented in your decisions; the cost of each initiative is given in the *Marketing Initiatives* decision form.

(c) **Research and development:** Equal to the sum of all budgets allocated to R&D projects in your decisions; the allocated budget is one of the many decisions which you have to make when initiating or continuing a research project.

(d) **Exceptional costs & profits:** Usually equal to 0. You may incur an exceptional cost if you decide to withdraw a product; in this case, any remaining inventory will have to be disposed of, the cost of which will be calculated as explained previously in the *Inventory disposal loss*.

(e) **Earnings before taxes:** Equal to *Contribution after marketing* – (a) – (b) – (c) – (d)

Marketing Plan						
Segment Size Estimates	Market Share Estimates	Market Sales Estimates		Product Contribution	Company Profit & Loss Statement	
The table below shows the evolution of firm S financial results in thousands of \$. The numbers in the column in italics are estimated based on the data provided in the previous steps.						
		Period 9	Period 8	Period 7	Period 6	Period 5
Revenues		\$368,202 k	\$302,753 k	\$255,262 k	\$190,972 k	\$202,474 k
Cost of goods sold		\$-99,730 k	\$-83,266 k	\$-75,981 k	\$-58,257 k	\$-58,482 k
Inventory costs		\$-1,994 k	\$-1,035 k	\$-2,683 k	\$-3,127 k	\$-4,391 k
Contribution before marketing		\$266,477 k	\$218,452 k	\$176,598 k	\$129,588 k	\$139,601 k
Advertising expenditures		\$-8,755 k	\$-5,770 k	\$-7,709 k	\$-5,571 k	\$-3,623 k
Commercial team costs		\$-15,034 k	\$-14,868 k	\$-13,001 k	\$-13,782 k	\$-13,584 k
Contribution after marketing		\$242,689 k	\$197,813 k	\$155,889 k	\$110,235 k	\$122,395 k
Market research studies		\$-1,215 k	\$-1,190 k	\$-640 k	\$-640 k	\$-614 k
Research and development		\$0 k	\$-2,810 k	\$0 k	\$-3,320 k	\$-5,200 k
Exceptional costs & profits		\$0 k	\$0 k	\$0 k	\$0 k	\$0 k
Earnings before taxes		\$241,474 k	\$193,813 k	\$155,249 k	\$106,275 k	\$116,581 k

Figure 61 – Marketing Plan – Company P&L statement