PharMed

**Sample Only**

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# User Guide

Revision 1.0

**1. Location and meaning of input parameters and input streams**

The PharMed model accepts inputs about the outlook of global pharmaceutical markets to estimate the size of the (admittedly smaller) medical research market that is necessary for the pharmaceutical companies to compete effectively with each other in key therapeutic areas. It is in this medical research market that opportunities exist for new companies with good ideas on how to gather, analyze, compile, and deliver key information to the pharmaceutical companies to make a contribution—and a profit. Therefore, the PharMed model was developed to also accept as inputs information about a proposed start-up company, including anticipated penetration into the medical research market, what therapeutic area(s) to target, the cost structure for compensating employees, and anticipated pricing of reports to the pharmaceutical companies that hire the start-up. The PharMed model then allows exploration of the hiring requirements, anticipated sales, expected income, and profit margin for the start-up. The results of comparing and contrasting the outputs from various scenarios can help potential investors decide whether or not to invest, and potential employees whether or not to become a part of the start-up company’s medical research revolution.

To get started, consider the following descriptions of the input parameters and input streams, all of which you will find on the “Inputs” worksheet:

* *Global Market Size.* This refers to the size of the pharmaceutical market in 14 key therapeutic areas: cardiovascular health, central nervous system conditions, oncology, immunology, anti-infective treatments, respiratory problems, metabolism issues, genitourinary problems, gastrointestinal issues, vaccines, heamatology, ophthalmology, dermatology, and issues surrounding organ transplants. In this case, market size is reflected in the amount of annual gross sales expected by all pharmaceutical companies in each therapeutic area over the next 12 years.

The global market size for each therapeutic area can be adjusted independent of all other therapeutic areas. This might be helpful if, for instance, you know that worldwide funding for vaccines is expected to rise over the next few years in a way that allows you to predict an increased demand for vaccines. Perhaps you know that funding for an effective and aggressive stop-smoking campaign will end in year three, causing a significant rise in cardiovascular health problems and concomitant demand thereafter for cardiovascular medication. Finally, knowledge of an expiring period of patent protection on a significant branded drug may cause a marked decrease in global sales in that therapeutic area (even if demand increases) due to the prevalence of less-expensive generic brands.

In any case, note that the estimated size of the global pharmaceutical market by therapeutic area must be entered as a starting point for the PharMed start-up model. In practice, estimates of the global pharmaceutical market for the next 12 years are routinely developed by government agencies and even private companies that make the predictions available publically. Not all estimates agree—pharmaceutical companies tend to be optimistic about their own future in required Securities and Exchange Commission (SEC) filings—so it is important to explore how different estimates of this market will impact the start-up company’s ability to survive and make money in the dependent medical research market. Finally, note that your inputs in these streams must be expressed in millions of dollars.

* *PharMed Market Penetration.* This represents the user’s estimate of the company’s success in capturing the medical research market, and must be expressed as a percentage of that market. As a start-up, you might expect smaller market share in the earlier years followed by some kind of realistic growth, although downturns in anticipated market share at some point are also valid, such as might happen if you anticipate a very successful year for a competitor that takes some market share back from the PharMed start-up. Note that all of the entries in this stream should be between 0% and 100% for the model to be valid.
* *Compensation Base.* Key employees in the start-up—as in most medical research companies—consist of: analysts that gather and analyze data in order to answer specific questions posed by the pharmaceutical companies; epidemiologists that understand the scientific processes behind treatments in therapeutic areas and who often convene focus groups of medical professionals to elicit the opinions of those in the medical community; program managers who oversee the process of researching the questions and writing the reports; and sales representatives who interact with the pharmaceutical companies that will hire the start-up to deliver reports on questions of import to them. The compensation base stream is the place to input the base salaries for these four key players. During an extended recession, you may anticipate the ability to hire people at a generally low starting salary; or, you may locate the start-up where competition is fierce for the best and brightest minds in the industry and anticipate that starting salaries will be generally high to attract top talent. In any case, these values reflect the anticipated starting salary for all employee categories, regardless of the year in which they are hired. These values should be in dollars.
* *Tier A Target* and *Tier B Target.* These are target threshold levels for the sales staff used to estimate commissions, and must be expressed in dollars. The PharMed model anticipates a three-level tiered approach to sales commissions, which is a common structure for a sales-oriented business. A sales representative that sells between zero and the Tier A Target value will receive the Tier A commission rate times the amount of his sales as a commission. A sales representative that sells more than the Tier A Target value but less than the sum of the Tier A Target and Tier B Target will receive the Tier A Target times the Tier A commission rate plus the excess in sales over the Tier A Target times the Tier B commission rate for a commission. Those that sell more than the Tier A Target plus the Tier B Target will receive the Tier C commission rate times the excess sales.
* *Sales Rep Commission Rate.* This stream represents the sales commissions as a percentage of sales for each sales tier as defined by the Tier A Target and Tier B Target values. More aggressive (i.e., higher values) will attract more talented sales representatives, but will also lower net income for the start-up. Through this stream you can explore the effect of changing these levels.
* *Market Size for Product Offering.* This is a threshold parameter you set in millions of dollars. You set this parameter to indicate the minimum size of the therapeutic area, as measured by the global pharmaceutical market, in order to consider entering the market and offering research and report services. Once a therapeutic area satisfies this threshold, the model will assume the start-up will continue to offer products (reports) in that therapeutic area even if the global pharmaceutical market subsequently declines below the threshold.
* *Base Price Per Report.* This parameter represents the base price (in year 1) of the company’s product—namely, a report—expressed in dollars. The model will allow setting any price for a report you desire as long as the value is positive. Note that a zero price for a report would indicate infinite demand and will result in errors in some computations and in the output. Setting an unrealistic price for a report may also lead to improbable results, but the model is designed to explore the implications of setting different prices for reports on the start-up’s income. In the current medical research industry, typical report prices are between $10,000 and $100,000.

**2. Location and meaning of outputs**

Output streams and their locations are as follows:

* *Total Sales*. This stream is located on the “Sales” worksheet, and is expressed in millions of dollars. In addition you can also find the same output stream reported on the “Income” worksheet as a line of the income statement, where it is expressed in thousands of dollars and renamed “Sales Revenue” for that page only. Observe how the changes you make in the input streams and parameters change the anticipated sales by the start-up company. In addition, the start-up company’s sales by therapeutic area and in total are graphically illustrated on the worksheet entitled “Chart.”
* *New Hires Analysis*. These streams—one for each type of employee—are located on the “EmplAnal” worksheet. This is the hiring schedule. (Note: “EmplAnal” is short for “Employee Analysis.”) The model assumes that the company only hires: there is no modeling of attrition. This may be somewhat unrealistic if the start-up experiences a sharp decline in sales at some point. However, treating the hiring schedule in this manner simplifies the estimate of the start-up expenses, and it is assumed most models will expect company sales that grow or at least remain flat for the first few years of the start-up’s existence.
* *Net Income*. This stream is located on the “Income” worksheet. This output stream estimates the net income for the start-up business and will be a key indicator the company’s success. Negative values indicate years in which expenses exceed the sales revenue; positive values indicate years in which the start-up is profitable. You will probably be most interested in how the net income is influenced by the input values.
* *Profit Margin*. This stream is located on the “Income” worksheet. Profit margin shows how large the company profit is compared to its sales revenue. Larger profit margins are attractive to investors, but also indicate opportunities for other companies to compete with the start-up. You will want to see how the profit margin changes as a function of the inputs.

**3. Guide to visual cues and naming conventions**

A few colors are used as background colors on the worksheets with the following significance to help you:

* *Yellow*. Yellow is used for values that are considered constant for all scenarios. These values, while necessary to generate the model outputs, do not generate significant insight into the processes that make this model unique; indeed, they are common to most business models. These values have been estimated by the model creators based on their experience in the industry; do not try to change these values. Note: all these fixed values are located on the “Defs” worksheet.
* *Light blue.* A light blue background indicates user-modifiable data. All input streams and parameters appear with a light blue background and are all located on the “Inputs” worksheet. These are parameters you will want to adjust in order to observe different behavior at the outputs.
* *Aqua blue.* Aqua blue is used for all output streams. Look for differences in these outputs as you adjust the input values.
* *Sage green.* Sage green is used for all values that are (1) not considered output streams but that (2) also appear in the income statement calculation on the “Income” worksheet. This is just to help you know that the value calculated with this background also appears as a key component on the income statement, where it is repeated.

Very few abbreviations are used in an attempt to make the named parameters intuitive. In cases when abbreviations were used, the following conventions hold:

* *RD* is short for “Research and Development.”
* *ProgMgr* is short for “Program Manager.”
* *Rep* is short for “Representative,” and is always used in conjunction with “Sales” (as in “Sales Rep”) to indicate a salesperson.
* *Avg* is short for “Average.”
* *Cum* is short for “Cumulative.”

Finally, the abbreviations used in the naming of the worksheets include:

* *Info* for “Information.”
* *Defs* for “Definitions.”
* *EmplAnal* for “Employee Analysis.”
* *CompPlan* for “Compensation Plan.”
* *SuppAnal* for “Supplies Analysis.”

**4. Step-by-step use of the model**

Use of the model is as follows:

* All model users will want to begin with estimates of the global pharmaceutical market (*Global Market Size*) by therapeutic area for the next 12 years. Some users will keep these input streams constant and supply only one estimate—perhaps one they obtained from a public source—while others will be interested in seeing how the output streams change as function of changes in the global pharmaceutical market. Those in the latter case can change the market parameters as they estimate increases or decreases that might happen.
* Supply the *PharMed Market Penetration* stream that indicates how successful you believe the start-up will be in capturing the market share in the medical research industry. Vary these parameters to see how different growth models will affect the outputs.
* Input the basic cost structure for the start-up company, including initial salaries for each kind of employee (*Compensation Base*), sales targets (*Tier A Target* and *Tier B Target*), commission rates (*Sales Rep Commission Rate*).
* Input the size of the global pharmaceutical market required in a therapeutic area (*Market Size For Product Offering*). This threshold value is used to indicate if and when the start-up will offer products in each therapeutic area. It is best to use values between the smallest and largest values in the *Global Market Size* input stream: if you choose a threshold above the maximum value in *Global Market Size*, the start-up will never offer a product; if you choose a threshold below the minimum value in *Global Market Size*, the start-up will offer products in all therapeutic areas.
* For managers and owners involved hiring workers, examine the *New Hires Analysis* array on the “EmplAnal” worksheet. This is the hiring schedule, by year and employee type. You may wish to return to the “Inputs” worksheet, change input parameters for a different scenario, and return to the “EmplAnal” worksheet to see how the *New Hires Analysis* value changes. (If the model does not update after entering new input values, push the F9 key on your keyboard to force Excel to recalculate all cells in the workbook.) Repeat this step for all desired input scenarios. Some required hiring schedules may be too aggressive and be impossible to meet; make note of which scenarios may not be possible from a hiring perspective.
* For owners and investors interested in business performance, examine the *Sales Revenue*, *Net Income*, and *Profit Margin* on the “Income” worksheet. These are the key business parameters. You may wish to return to the “Inputs” worksheet, change input parameters for a different scenario, and return to the “Income” worksheet to see how these key business parameters are affected. (If the model does not update after entering new input values, push the F9 key on your keyboard to force Excel to recalculate all cells in the workbook.) Repeat this step for all desired input scenarios. Some periods of negative net income may be discouraging to some investors; some periods of elevated net income may seem too incredible. Note the input streams that gave rise to such outputs and evaluate how probably the input streams are.
* Finally, enjoy dreaming of how rich (or poor) you may become investing in such a start-up company!