



MaRS | ENTREPRENEUR WORKBOOKS

Sales & Revenue Forecasting Series

Bottom-up sales forecasting for Pre-revenue Start-ups

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Introduction

What to expect

This workbook guide was produced by MaRS Education and is designed specifically for entrepreneurs in the high-tech space who are in the beginning stages of starting their company.

In this workbook, we take you through the steps of creating a *bottom-up approach* to revenue forecasting. This is our recommended forecasting method for start-ups when developing the financial projections upon which financing decisions will be based. This method is applicable when developing projections that include external investors (such as VCs)—and also when you simply want to know how much of your money will go into the venture.

Pre-revenue forecasting is important for financial-planning purposes, such as creating a budget for your start-up and pitching to investors. The two forecasting models covered in this series of workbooks are the [top-down approach](#) and the *bottom-up approach*. There are many other forecasting models, such as those involving statistical methods, the Delphi method and panel forecasting, that might be more appropriate for your company at a later stage.

Compared with the top-down approach, the bottom-up approach is a more credible model simply because it is generally more detailed and thus easier to probe. If you are in the process of raising money, we recommend that you use a bottom-up approach as the primary means to establish your revenue forecast. Nevertheless, we suggest that you run your numbers through both forecasting methods. The two are likely to yield different results and the comparison will give you a chance to reflect on the reasons why they differ—something that will prepare you for discussing your revenue forecast with investors and business partners.

Forecasting for start-ups

Forecasting is a process that has both inputs and outputs. Many advanced forecasting methods rely on statistical methods that have little relevance for small companies that might not have started their revenue-generating activities (as you will not have any of the historical data that those methods require).

The absence of historical data will mean that your forecasts must rely on more assumptions and metadata, many of which are based on industry standards or your experience (and the experience of those around you). Initially, your forecasts must yield a result that is “in the ballpark,” which will enable you to make the necessary arrangements with regards to liquidity and capacity planning.

Most start-ups in the B2B environment begin with some form of personal and direct sales activities before determining whether to enter into agreements with a marketing [intermediary](#). For this workbook, we will assume a direct sales model when exploring various forecasting models that are currently in use.



How to use this workbook

1. Get your team together!

We recommend that you make the creation of your revenue forecast a team effort and work through the exercises thoroughly, but as efficiently as possible. Developing your revenue forecast can be very time-consuming, especially if neither you nor anyone on your team has any experience related to revenue forecasting or budgeting. Furthermore, revenue forecasting is a process that requires you to closely examine your market assumptions—something that is of great benefit when your key team members are involved. The goal of this workbook is to help you focus your efforts on the parts that are essential to start-ups and thus make the time spent developing your revenue forecast as productive as possible.

2. Use the icons for help

The workbook guides are structured under the assumption that this is the first time you, the reader, has undertaken a forecasting exercise. To help provide context for some of the ideas in these workbooks, we have clarified the ideas by defining key terms and offering real-world examples. In addition, we have provided links to articles on the [MaRS website](#). For this reason, you may find it easiest to use the workbook guides on a computer with an Internet connection.

Look for these icons:



denotes a key term that will recur in these workbook guides



indicates an example drawn from the marketplace in order to illustrate an important idea



denotes a link to a more in-depth article, video or template on the MaRS website

WORKBOOK:

Bottom-up Forecasting for Pre-revenue Start-ups

1. The sales funnel

The starting point for the bottom-up approach is the concept of the [sales funnel](#). The sales funnel is a method of measuring and categorizing your sales opportunities in a way that allows you to build a revenue model.

The stages of the sales funnel

The sales funnel is your mirror image of the customer's buying process. From the seller's perspective, it enables you to describe the various stages of a sales opportunity from the early stages until closing. The sales funnel is the natural starting point for the revenue forecast because sales drive a company's revenues and most of its costs.



Learn more about the steps in the [buying process](#).



The sales funnel is a method of measuring and categorizing your sales opportunities at a granular level.

The following table describes the various stages of the sales funnel.

Stage	Description
Suspect	A "Suspect" is a potential customer that you have identified as a reasonably good fit with your target customer . At this stage, the Suspect has not displayed any buying signals and you have not had any interaction with the Suspect.
Lead	A "Lead" is a potential customer that has either contacted you to inquire about your services or been referred to you by a third party. At this stage, there might have been some interaction with the Lead, but you have not yet received verification of the Lead's real interest in your services.



Prospect	At the “Prospect” stage, you have interacted with either a Suspect or a Lead and have verified that they have a need. The Prospect is interested in meeting with you to determine whether there is a good fit between their need and what you can offer.
Qualified	<p>A “Qualified” Prospect is a sales opportunity where one or more in-depth conversations have taken place to verify the following essential pieces of information:</p> <ul style="list-style-type: none"> • The Prospect has verified that your services are a fit for his or her need. • You have verified that the Prospect has sufficient budget to make the purchase. • The Prospect is authorized to make the buying decision and has committed to doing so within a reasonable timeframe. <p>A Prospect is not “Qualified” until the above information has been verified.</p>
Developed	A “Developed” opportunity occurs when the Prospect confirms they are ready to make a buying decision. This readiness is often indicated by a request for a formal proposal within a certain deadline.
Committed	A “Committed” opportunity involves the acceptance of your offering, either by placing an order or agreeing to your proposal.
Transacted	A “Transacted” opportunity occurs when the customer has taken delivery of your service and has received an invoice.

At any given time, a company will have some sales opportunities that are at a very early stage of development and other opportunities that are at a more mature stage. There might be other sales opportunities that are between these stages in terms of the likelihood of resulting in an actual sale. The fact that some sales opportunities are more developed than others reflects the notion that businesses normally proceed through several steps when considering the purchase of a new product.

Note that sales organizations differ in how they label and define each stage. Once you begin having sales, you might customize the description of the steps to reflect how your typical customers move through the buying process.

The length of the sales cycle

The steps involved in creating the bottom-up revenue forecast will differ according to whether your start-up is in a pre- or post-revenue phase. However, the approach always considers the time required at each stage of the sales cycle. The following figure illustrates the relationship between the sales cycle and the buying process, and how the steps relate to the company’s cash flow.



Sales process, buying process and cash flow timelines

Sales Process



Buying Process



Cash Flow



You can determine the length of the sales cycle through a combination of the activities involved in the customer's *buying process* and the activities in your corresponding *sales process*.

The customer's buying process depends on the nature of—and the time required for—your target customer's activities while they learn about and decide whether to buy your product. These time requirements depend on several factors:

- **Familiarity:** Is your product fundamentally new to the buying organization or do they have previous experience with a similar product?
- **Cost level:** Is this a high-ticket item that requires significant financial planning (either through budget reallocation or external financing) or can the customer use existing budgets to fund the purchase?
- **Decision process:** Is a single person responsible for making the purchasing decision, or will it involve a designated committee or group (which might be a more time-consuming process)?
- **Clarity of value:** Would customers require a demonstration or prototype to validate your claim about your product's benefits?
- **Urgency of need:** Several factors may affect the customer's need to move beyond their regular business-planning and decision-making cycles. For example, customers may need to make the purchase in order to meet regulations, or unforeseen events may suddenly hasten the buying process.

Your sales process depends on the activities and time associated with managing each activity to move the sales process forward. These requirements depend on several factors:

- **Access to decision-makers:** How much time would it take to book a meeting with the key decision-maker(s)?
- **Complexity of sale:** How many meetings would you need to adequately position your offering and demonstrate its value?
- **Preparation:** Do you anticipate having to write a proposal or provide the customer with a trial, or test prototype?
- **Resources:** What resources will be required (e.g., organizational, technical, financial) during each step of the sales process? Will the sales process require support from your team’s technical staff?
- **Distance:** Does the sales process depend on travel to sites or decision-makers in other regions or countries?

Given the above factors, each business and product will have sales cycles that vary in length of time and complexity. When making a revenue forecast, it is important to make reasonable assumptions about these so that you do not underestimate the time required to go through the stages of the sales process.

Example: Company X—Sales process for innovative solar panels

Sales Objective	Activity	Duration
From “Lead” to “Prospect”	A meeting/call to verify the need and interest in our product	One to three weeks to schedule a call
From “Prospect” to “Qualified”	A series of meetings, first to establish sales process, then to evaluate fit, before evaluating overall value	Three to nine months, depending on how much technical documentation we have ready to show the Prospect
From “Qualified” to “Developed”	A meeting to secure the Prospect’s buy-in to proceed with the buying process; this stage often culminates with the submission of a formal proposal to the Prospect	One to three months, depending on a range of issues on the Prospect’s side (e.g., budget, organizational readiness, readiness of the Prospect’s customers)
From “Developed” to “Committed”	Calls and meetings to ensure that each stakeholder on the Prospect’s side is comfortable with the bid and committed to make the decision as soon as possible	One to three months, depending on customer’s internal decision-making process, whose buy-in is required, and the urgency on the customer’s side

Looking at the example above, the best-case scenario suggests a buying process of at least four to five months before the Prospect is ready to make a commitment. If everything runs smoothly, and the customer places an order after five months, you will likely require one month to deliver and the customer will require one month to pay the invoice. In this best-case scenario, you can budget to receive the cash after seven to eight months.

In a worst-case scenario, we could easily see this time period increase to 18 months. This assumes that external forces, such as regulatory and political processes (e.g., awarding of approvals, licenses) do not affect the process by adding time and risk to the decision.

If you are [bootstrapping](#) and seeking external funding, understanding the timing of the processes that generate cash will prove critical for your success. For forecasting purposes, we recommend that you use average expected cycle durations.

Conversion rate

The conversion rate is a metric that describes the probability of a sales opportunity moving from one stage of the sales cycle to the next. Expressed as a ratio, it helps you understand the quality of your qualification and sales processes. For example, you might see ratios such as 20 leads to generate one deal, 10 prospects per deal, or five qualified prospects per deal.



For more details about the conversion rate and other important sales metrics, read the articles entitled [Sales metrics](#) and [Managing and analyzing sales metrics](#).

By including the time required to move a sales opportunity from one stage to the next, as well as the probability of a deal moving from one stage to the next, the bottom-up approach can forecast more accurately than the top-down approach the amount of revenue and the specific budget period for the revenue.

Many entrepreneurs underestimate the number of prospects and leads required to make a sale. Consider the following example:

Example: Lead-to-sale conversion rates

Stage	Number of opportunities	Conversion rate
Leads	100	80%
Prospects	80	50%
Qualified	40	25%
Developed	10	50%
Committed	5	N/A



This example indicates that 100 leads will generate five sales. Even though this is an imaginary example, the conversion rates are similar to, and in some cases better than, rates used by many businesses. This suggests that, at a pre-revenue stage, you should make informed assumptions about the conversion rates between each stage, which you can then validate or adjust once you begin actual sales and marketing activities.

Average selling price

The final assumption required for your sales funnel is the average selling price of your offering. Prices of technology products are often complex, with a mix of licensing fees and services, which in turn might depend on the duration and/or scale of the deployment. As a reflection of this complexity, many entrepreneurs spend a lot of time developing sophisticated pricing models, which then fall apart when faced with the harsh realities of the marketplace.

Technology products must be priced according to the value they generate for their buyers. The easier it is for your buyers to understand and capture the value of your product, the larger share of that potential value you can claim as your selling price.

For example:

- If the simple process of adding your proprietary chemical to a product is guaranteed to save the customer \$100 per unit, you might be able to charge \$40 to \$70 per unit.
- If implementing your new document-processing software will save your customer \$10 per day for each employee, and they successfully implement the software but then change their customer service process, the complexity of the proposition and inherent risk in implementing your approach means that you might only be able to charge the equivalent of \$1 to \$2 per day for each employee of your customer.



For more information about pricing of technology products, read the article entitled [Pricing](#).

To create your forecast, you also need to calculate the expected share of your selling price which is made up of one-time services, as opposed to recurring product sales; the two often have differing margins and input factors. To calculate this value, assume that, for each sale, an average of X% pertains to services (e.g., consulting, documentation, training).

Once you have decided on a pricing model, calculate your expected average selling price per sale or contract.



2. Selling cost and capacity

During the initial stages of development, a start-up tends to over-invest time and resources in their first sales opportunities because of the importance of securing reference customers to accelerate subsequent sales. Also, at that point, the nature of the sales process is unknown, so its management is not streamlined. Look beyond the first handful of customers and try to standardize your sales process, as well as your expectations of their typical duration, deal size and required resources.

The number of sales opportunities and accounts an individual salesperson can develop and manage will vary according to the complexity of the sales process and the product. It will also depend on the salesperson's experience and the geographic and cultural distance between the seller and the buyer.

Accounts per salesperson

In business-to-business sales, the number of accounts per salesperson might vary from one to about 100.

Where only one salesperson is allocated to one account, there are usually multiple (and large) buying centres within the account that can be developed and targeted somewhat independently of each other (at least during the early stages). The types of accounts that lend themselves to dedicated sales resources are often very large companies or government organizations.

Even though start-ups might target such accounts, few will have the luxury of dedicating an entire sales resource to only one account. The cost of sales and the risk of failure are often so high that they preclude such an approach.

More often, start-ups will pursue a sales strategy that targets multiple, but particular, accounts before moving toward a "specific territory" approach that is governed by factors such as geography, industry and company size.

A starting point in determining a sales strategy would be to designate a sales territory that consists of 50 to 100 accounts initially. However, start-ups must stay flexible and reduce or increase the number of accounts depending on the rate of success in establishing relationships and sales opportunities within each account.

An important aspect to consider in the above process is the nature of what you are selling and the appropriate account strategy:

- **Retention/resell:** Your customer might want to buy from you again soon. In such a situation, you will want to develop and maintain a sales approach that limits the number of accounts per salesperson, because they will spend (much) more time managing the relationship than going after new customers.
- **Account penetration/upsell:** Your customer might have multiple users or buying centres that could be approached for sales. In this case, it often makes sense for the account's salesperson to leverage an existing relationship



to upsell and grow the account by adding users and buying centres, rather than have them pursue customers with whom they have no pre-existing relationship.

- **Transactional:** If your product involves a single, one-time transactional sale, then developing a relationship will prove less important. In this situation, allocate more accounts to each salesperson.

Sales opportunities

The number of sales opportunities a salesperson can handle depends on the length and complexity of the sales cycle. Consider the following:

- Initially, it is difficult for start-ups to determine how many sales opportunities a person can manage. It is important to maintain flexibility to ensure that good opportunities are not lost by giving too many to the same salesperson.
- Even with the same product, the complexity of the sales process can vary initially, making it difficult to assess the exact number of opportunities a salesperson could handle.
- With short, transactional sales processes, a salesperson can handle more opportunities over a short period.
- Opportunities that demand a high degree of customer management will reduce the number of opportunities that the salesperson can manage.
- Assuming that each salesperson can manage approximately 30 opportunities of medium complexity at every stage at any given time, progress should occur every month.
- The most critical period in the sales process occurs around the closing of the deal. At this stage, every opportunity is of high value because so much time has been invested to reach this point. The close is so important that, in B2B sales, it might be difficult to manage closing more than a handful of opportunities per month.

Sales productivity

Sales productivity is the final point to consider when assessing your selling capacity. The key question is how long it takes for a new salesperson to ramp up and become a productive member of the team. For complex products, it may take several months before a salesperson will earn his or her own salary back, let alone contribute to the company.

As you plan to expand your sales efforts, remember that the length of time needed to ramp up a new salesperson will affect when you should hire as well as how much you will need to spend.



Consider the following example with regard to hiring a new sales associate to work on-site at a call centre.



Example: On-site call centre sales associate

Before hiring a new sales associate to work on-site at a call centre, a company would need to evaluate the following factors and costs:

- The new associate would require a three-month training/ramp-up period.
- He/she could manage a territory of 30 to 50 accounts.
- He/she could pursue 20 to 30 sales opportunities in parallel, or about 100 opportunities over a 12-month period.
- The average cycle time for a sales opportunity is three months.
- The conversion rate is 15%, meaning approximately 15 deals per year.
- The average deal size is \$15,000.
- The expected revenue per sales associate is \$225,000 after the first 15 months (including ramp-up time).
- The cost/pay is \$40,000 (50% salary and 50% commission).
- Other expenses, such as training and provision of a computer and telephone, are calculated at a percentage of the salary (e.g., 15%).

For your revenue forecast, you need to determine the following metrics:

- number of sales opportunities that can be managed by a salesperson
- number of deals closed per month
- ramp-up time for each salesperson
- typical cost of a salesperson

Arriving at this information might require some research. If need be, speak to someone familiar with selling in your industry and find out what you need to get started.

3. Other costs

To ascertain the remaining expenses that will affect your revenue forecast, we recommend you refer to your company's milestones (the same ones that will guide your expansion and commercialization as suggested below). These milestones will help you gauge your personnel needs and other costs and may include:

Personnel-related costs:

- When is your product ready for sale? The answer to this question depends on how many people are required to build your product and the expenses associated with each team member. Estimate conservatively, as it usually takes much longer than planned to finish the product.
- When to add a marketing team? Factor in marketing requirements about 18 months before launch.
- When to add sales staff? Assuming a six-month ramp-up time, add sales staff about six months before launch.

Non-personnel costs:

- Assign identifiable capital costs, such as a prototype or expensive machinery, as a specific line in the forecast.
- Bear mind that other costs are normally a function of the number of people in an organization. If your sales process is complex and requires many resources, begin with the assumption that you need to multiply your personnel costs by 80% to reflect those expenses. If your sales process is straightforward, you can multiply your personnel costs by 30% instead.

Note: At this stage, you can ignore complicating factors such as depreciation, amortization, and capitalization of research and development. These factors typically have a negligible impact on the numbers involved when creating your initial budgets and speaking to investors and lenders.