

It Always Takes Longer and Costs More

The Enterprise Sales Learning Curve

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"Taking longer and costing more" is the rule rather than the exception for most start-up companies. The hope is that the company will eventually "cross the chasm" and reach "the promised land" – cash flow breakeven and then profitable operations. There is always a question of whether they will make it across and, if so, how long it will take and how much it will cost. Start-up companies progress through the three major stages: product development, go-to-market and market expansion. The least predictable stage for most companies is the go-to-market stage which begins when the company launches the product. Uncertainty surrounds decisions on the number and timing of resources to deploy and the time and cost required to make it through this stage. The Enterprise Sales Learning Curve (SLC) is designed to help managers and investors understand and think about the consequences of these decisions, and more efficiently deploy resources to reduce uncertainty in "crossing the chasm".

The uncertainty involved in the go-to-market stage is illustrated by the case of Flycast Corporation...

EXPERIENCING THE SLC -- FLYCAST CORPORATION

Flycast, a web advertising company founded in 1996, was built around a proprietary client/server application capable of enabling media buyers to set up and run web advertising campaigns across a network of web sites – directly from the media buyer's desktop. The most exciting part, from an engineering standpoint, was that the Flycast had the capability to conduct real-time auctions for determining the price and delivery of ad inventory. Media buyers could bid on inventory that would have otherwise gone unsold. The product was designed to please both sides of the ad buying equation – buyers got a good deal, and sellers got incremental revenue from expiring ad space.

The product's functionality and efficiency was groundbreaking. It managed in minutes transactions that would take weeks, often months, to complete offline. But while the live demonstrations wowed potential customers and the press raved about the product's capabilities, converting potential customers into active users was surprisingly difficult.

Flycast kicked off its go-to-market sales effort after the product passed an internal functionality and stability simulation. Immediately following the simulation, Flycast asked one of its young and relatively inexperienced employees to cold call

web sites and convince them to redirect available ad inventory to the network. Less than two months later, the company had grown the sales team to four by hiring a Vice President of Sales from a large, well-established software company, an experienced software sales rep, and one former software marketing manager. The four-person team was responsible for signing both buyers and sellers of ad inventory

There were several unanticipated problems when it came time to use the network. Sales reps at Flycast began to realize that the media buyers often needed to get approvals from higher-ups before launching a campaign. Flycast's real-time functionality was too fast for them. The company's solution bypassed procedures used in media buying designed to capture important details for the client, including price, campaign dates, and number of impressions, in favor of speed and cost savings. Flycast's sales reps quickly learned that getting the best price for media and completing the transaction in 'real-time' were not as important to media buyers as knowing the price, campaign dates, and number of impressions in advance of the media buy.

There were other problems too. The product did not interface smoothly with its intended environment. If the media buyer or seller had a firewall, they had to work through multiple lines of command to gain approval to open a port in the firewall. Furthermore, while relatively simple to operate, Flycast still required media buyers to learn a new software application for which they had no in-house 'expert' to train them.

Flycast faced such a long list of challenges to its plan of having its software installed on every media buyer's desktop that the company had to regroup and devise a new distribution strategy. Rather than giving the customer the tools to manage their campaigns, Flycast operated the tools in-house. They hired a team of media consultants to 'take orders' from media buyers and input their orders at a set price – no auction. The company put the brakes on engineering expenditures slated for improving the product based on the original design specs. Instead the company channeled money and resources into developing new marketing packages, and planned to use a less advanced version of the software in-house.

These adjustments are typical of a company "learning" and changing as it interacts with real customers using the company's product to do real work. The new plan worked for Flycast- it became the second largest web advertising network, went public in 1999, and was ultimately acquired by a large Internet holding company.

THE PROBLEM FACED AT THE GO-TO-MARKET STAGE

Successfully completing the first on-site customer testing (beta test) presents a number of decisions and competing pressures that often create tension, both internally and between

management and the company's investors. The initial sense of achievement and confidence in the product along with limited capital, growing expenses, and pressure from financial backers push the company to attempt to drive revenue rapidly in order to reach cash flow breakeven at minimum cost. Customers and the sales force pressure the company to enhance the product's functionality and reliability.

Since revenue is only generated by sales activities, and sales activity is correlated with the number of sales representatives, there is pressure to hire and deploy sales reps quickly. Also, in the race to capture market share companies don't want to forfeit potential sales opportunities by "not showing up for the game", thus adding pressure to match competitor's geographic sales coverage.

The problem is that if a company deploys too many sales reps before they experience broad based learning about their product, market and sales process through customer interaction, it will burn cash on unproductive sales reps that are stalling in the field. This is a lesson learned the hard way by many companies that assume they can dominate a new sector by deploying a large and expensive sales force, only to find out that the product and / or the market is going a lot slower than anticipated costing the company precious cash and investor, employee and customer confidence – and maybe even the whole company. On the other hand, if all is "ready", and the company's approach is too timid, then the company may risk losing a first mover position. As the example below illustrates, understanding the implications of learning and pacing sales rep hires is a critical step in managing cash reserves in a start-up. This is where the SLC comes in.

THE CASE OF NANO-OPTICAL CUSTOMER ADAPTIVE SOFTWARE (NOCASH)

The fictitious example of the Nano-Optical Customer Adaptive Software and Hardware (NOCASH) company illustrates a typical planning response to this stage of go-to-market.

After initial testing, the CEO hires a VP of Sales from an established firm who has a good track record for developing sales strategies to address the sales force build-up. The basic tool to determine staffing requirements used broadly in sales management is the Capacity Planning Model in which a sales quota is established for each rep based on industry experience, and revenue generation capacity is calculated based on a productivity ramp for each rep and a revenue adjustment factor to account for attrition and expected quota performance demographics.

For NOCASH:

Fulltime Equivalent Sales Rep (FESR) quota—\$1.5M

Productivity ramp of individual sales rep, by quarter—0, 0.5, 1, 1 (After 6 months the sales rep becomes a FESR with a capacity of \$1.5M per year.)

Revenue adjustment factor--0.20

This yields a first year revenue generation capacity for each SR of $(\$0 + \$500 \times 0.5 + \$500 \times 1 + \$500 \times 1) \times (1 - 0.20) = \$1M$.

The contribution margin for a sales rep is determined by subtracting the fully loaded cost of an FESR (approximately \$500K, composed of base salary + commissions + payroll overheads + allocable costs of sales engineering, sales management, remote offices + direct costs of travel and entertainment) from the gross margin of the FESR's expected revenue. Assuming a gross margin of 90%, this gives a contribution margin per sales rep in the first year of $(\$1M \times .90) - \$500K = \$400K$ and in subsequent years \$940K. If NOCASH has a \$1M per month cash burn rate associated with the fixed costs of product development and G&A operations, then using this model would suggest hiring a minimum of 30 sales reps as quickly as possible would get to cumulative cash flow breakeven at the end of the first sales year. Figure 1 depicts this 'hoped for' result:

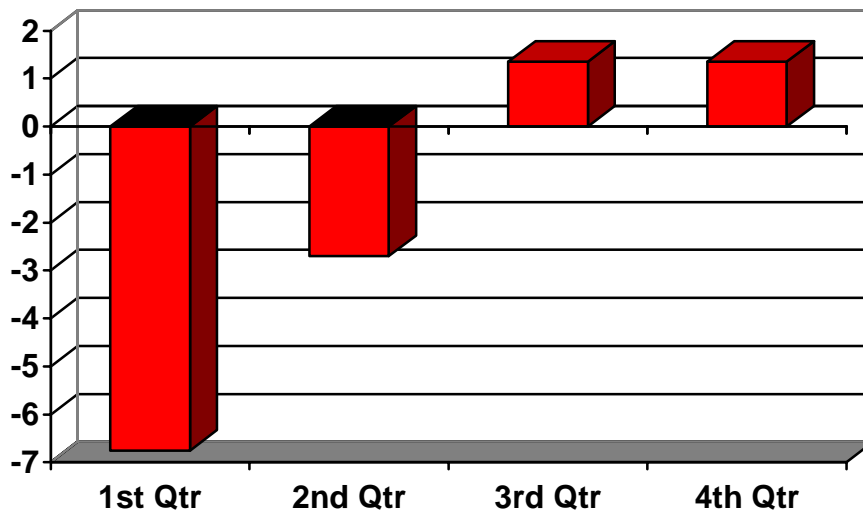


FIGURE 1 – NOCASH, THE HOPE

The reality is all too often a result like shown in Figure 2, which typically leads to a crisis in the company (with the result that the VP of Sales, most of the sales force, and perhaps even the CEO, get fired).

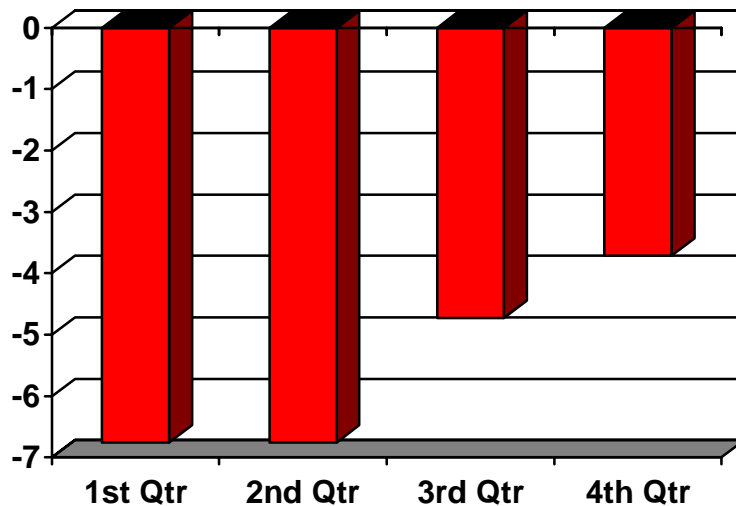


FIGURE 2 – NOCASH, THE REALITY

The problem illustrated by the NOCASH example is a lack of understanding that both products and process (marketing and sales) go through a learning phase as part of the go-to-market stage. In the conventional Capacity Planning Model, the first and most sensitive assumption is the annual revenue per FESR. During the go-to-market stage this is not a fixed number, but instead increases as the company experiences learning and makes adjustments. As the NOCASH example suggests, most companies do not really know their level of “readiness” at time of product launch. The learning that takes place in this stage is typically sequential in nature and difficult to predict (we do not know in advance what we will learn nor how long it will take).

Companies must avoid the temptation to think that they are ready to staff for growth after completing the product development phase. This is the point when the company begins its real learning that will allow it to successfully "go to market".

FACTORS THAT INFLUENCE ENTERPRISE LEARNING

Every business goes through its own unique learning process, and each industry, company and product has a different set of drivers. In software, the most difficult problems are those related to the correctness and completeness of the product and the sales and marketing processes. More often than not, the product doesn't have exactly the right features, doesn't work exactly the way it was supposed to work, and the sales and marketing processes are not focused correctly on the right customers .

For many companies, especially those involved with technology, Table 1 below defines some of the important factors that evolve through learning.

Product Development	Marketing	Sales
Completeness Features Ease of Installation Correctness Value to Customers Reliability Serviceability Fit Ease of Use Suitability for Environment	Positioning with Customers Competitive Analysis Market Segmentation Marketing Messages Proof of Value Proposition (ROI) Packaging Promotion Collateral Materials Advertising, shows and PR Customer Success Cases Pricing Across Market Segments Across Channels	Channels of Distribution Parameters of the Deal Training Sales Force Sales Model Sales Pitch Training and Development Lead Generation Technical Support Sales Stage Learning Development Expansion

Table 1

CAPTURING ENTERPRISE LEARNING

Learning characterizes many activities of a firm. In manufacturing this leaning has been captured through learning curves. These were identified as important for understanding product costs. In the 1970's, the Boston Consulting Group developed the concept into a strategic tool and based a large part of their practice on developing and exploiting cost advantage available to firms who were "down the learning curve". They raised the concept from one focused on a particular process to one attributable to an entire firm. The fundamental premise is that processes and firms become more efficient over time. In the case of the manufacturing learning curve, the independent variable that most accurately predicts falling costs is the number of times a process has been run. Moore's Law is a famous "learning curve" that captures the improvements in semi-conductor density available as a factor of time. In both these cases the actual curves reflect the aggregation of many different activities that affect cost and density

Like the manufacturing learning curve and Moore's law we can capture this learning in an aggregate Enterprise Sales Learning Curve (SLC). The three factors described in Table 1 and their sub-components primarily drive the SLC and hence a firm's ability to generate revenue. The SLC captures the aggregate effect of this learning. Although the effects of the SLC are seen in established firms, the effect is often most readily observable and dramatic in start-up firms.

Figure 3 shows the complementary nature of manufacturing learning and revenue generation learning in a product based company. Manufacturing learning is driven by a group of departments facing the Production Frontier and is captured by the Manufacturing Learning Curve (MLC). Revenue generation learning is driven by a group of departments facing the Customer Frontier and captured by the SLC. The data available for estimation of the curves are quite different. In the case of the MLC a well-established field of cost accounting collects and disseminates the data required to plot the curve. This is possible partly because production processes generate substantial amounts of data. They are more repeatable and hence more predictable than revenue generation activities especially with new companies. But, the availability of data also is partly the result of a concerted effort to collect it. As we will argue below, a concerted effort to understand the learning required and determine where the firm is

located on the SLC can be helpful in deciding how to deploy resources during the go-to-market stage.

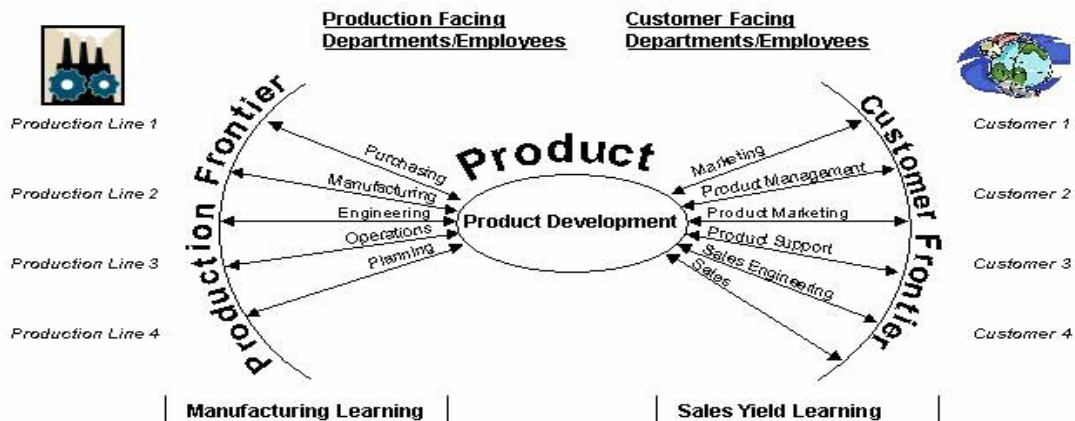


FIGURE 3: LEARNING IN THE PRODUCT CENTRIC ORGANIZATION

DEFINING THE ENTERPRISE SALES LEARNING CURVE

An example of the SLC is shown in Figure 4 below. The curve represents the increase in yield over time as learning takes place. **But of course, as is the case with the MLC and Moore's Law, the learning represented in the SLC does not take place without effort. And, it is important to note that such learning is stimulated principally by the company's various interactions with customers.** Each of the factors in table 1 above may have a variety of activities that contribute to the learning.

Recognizing that sales reps have different capacities, a Fully Equivalent Sales Representative (FESR) is defined as a sales rep that can achieve an industry average quota. Individual sales reps reach FESR status through an "individual" learning phase that typically lasts about six months. The SLC reflects a different type of learning. It is the learning captured by the product development, marketing and sales groups as the firm goes through the go-to-market stage and is illustrated in figure 4 below.

The actual revenue generated will depend on the level of training and the capacity of the individual sales reps, the ability and motivation of the sales reps to stimulate the organization to learn, the ability of the organization to learn and respond, and, of course, the overall quantity of learning that is required to achieve merchantable products. The shaded area around the curve in

figure 4 below represents the uncertainty about the rate of learning and the ultimate sales yield. It recognizes that the actual curve may take a longer time to reach steady state and also may reach a maximum short of the standard quota. As discussed below the degree of uncertainty surrounding the curve can influence the hiring strategy used by a firm.

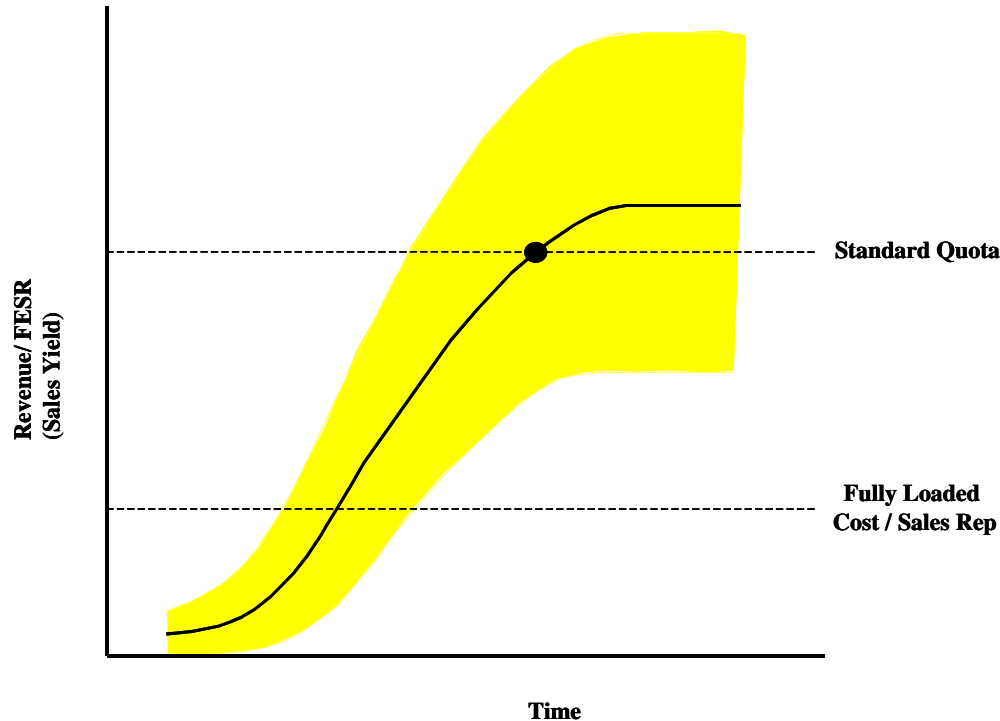


FIGURE 4: SALES LEARNING CURVE

The shape of the curve obviously varies with the product and industry but the curve shown in Figure 4 is illustrative of the learning phenomenon. With these definitions we see that the revenue generated in any time period is given by:

$$\text{Revenue} = (\text{Average SLC during the time period}) \times (\text{Number of FESRs})$$

And, similarly the contribution margin of the sales force in any time period is:

$$\text{Contribution Margin} = (\text{Average SLC during the time period}) \times (\text{Number of FESRs}) - (\text{Average Fully Loaded Cost/ Sales Rep}) \times (\text{Average Number of Sales Reps})$$

PHASES IN THE SLC

In the implementation of the SLC for sales force planning, it can be useful to consider three phases. The first, the Initiation Phase, is dominated by the learning discussed above and can be appropriately called Staffing for Learning. This phase begins at the start of the go-to-market phase and lasts until an FESR can reach a volume that covers the fully loaded costs of a sales rep and makes a positive contribution(see Figure 5.).

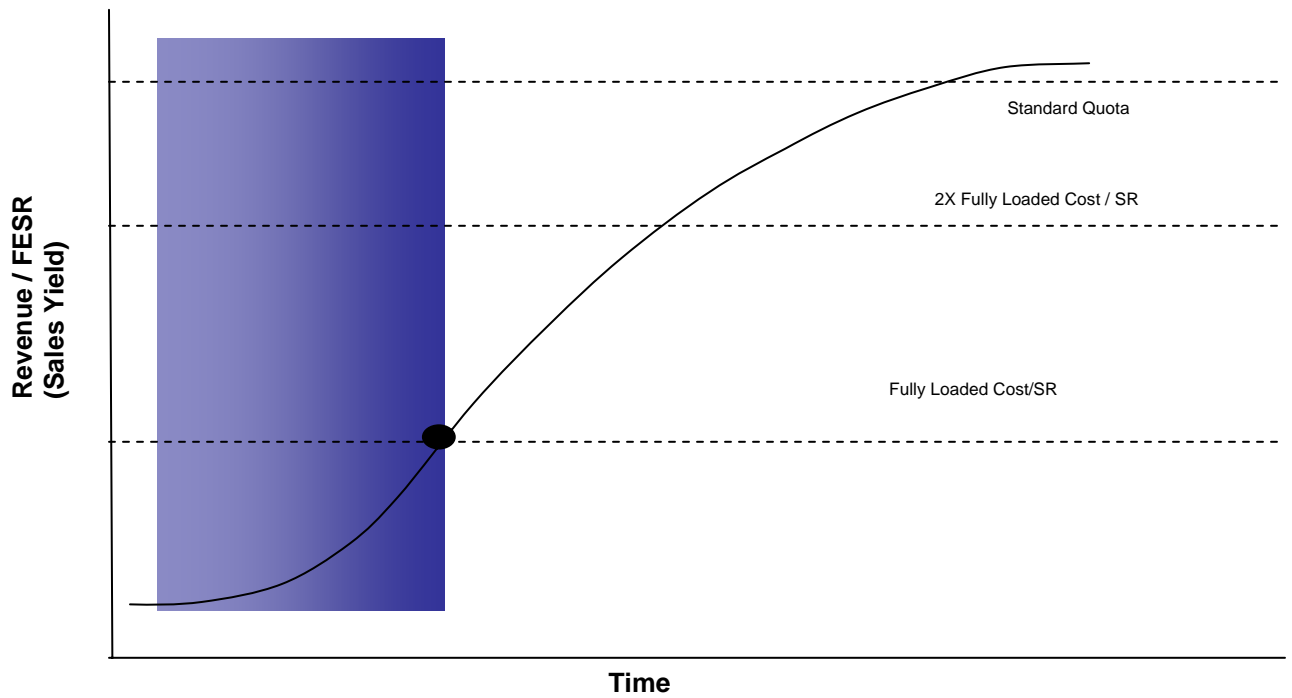


FIGURE 5: INITIATION PHASE

The second phase, the Transition Phase, lasts until the sales yield reaches a point where company management can see that the product will be successful. In some cases managers may use 2X the fully loaded cost per sales rep as the end of the Transition Phase. It is during this phase that the company typically gains visibility into the ultimate sales yield level.

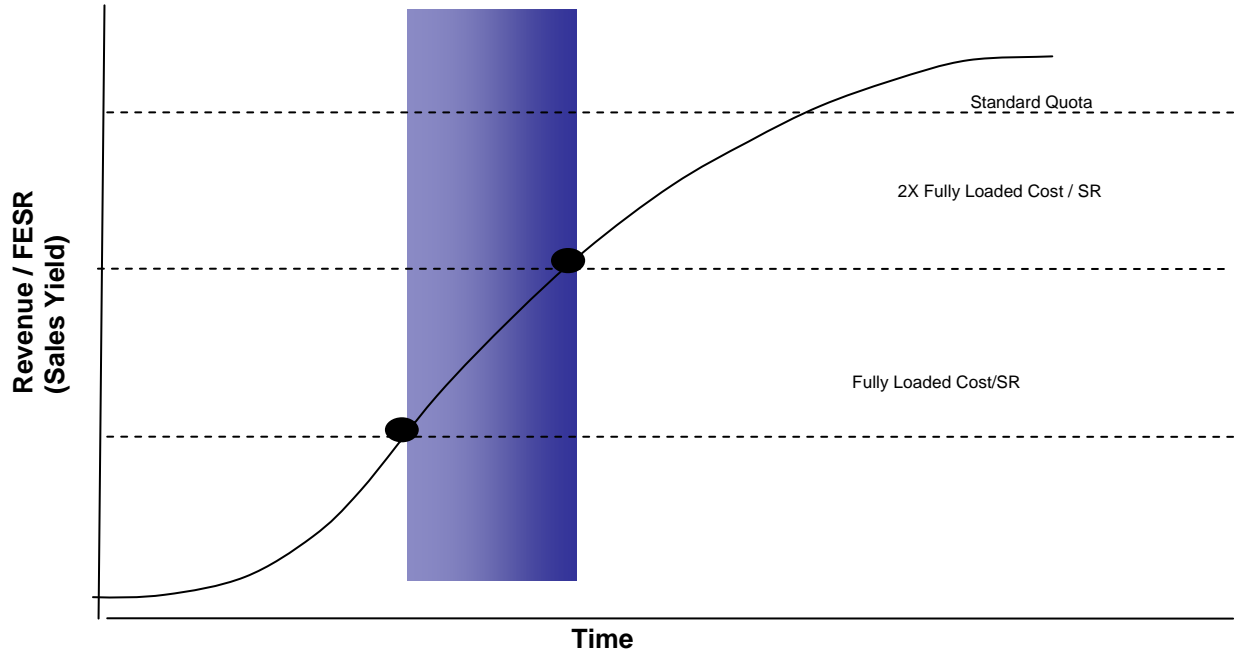


FIGURE 6: TRANSITION PHASE

Once the SLC reaches the point where visibility into the product’s success is achieved the third phase or Execution Phase is reached. This will signal that a repeatable sales model has been developed and hiring will be determined by ability of the organization to hire and train Sales Reps and desired market penetration.

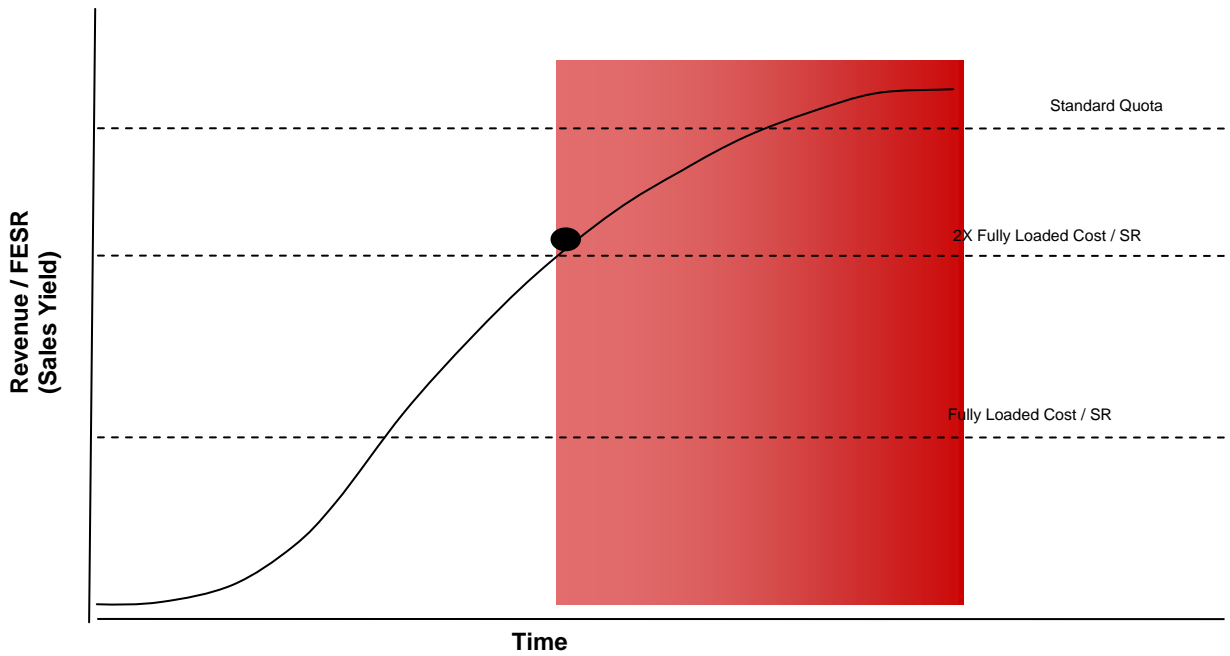


FIGURE 7: EXECUTION PHASE

GO-TO-MARKET STRATEGIES AND THE SLC

The SLC can be used by managers for a number of things but three stand out. The first and most fundamental is to understand and manage the expected cash requirements to reach cash flow breakeven. As demonstrated with the NOCASH example, lack of recognition of the learning phenomenon can lead to significantly underestimating the cash requirement resulting in severe consequences for the firm and its managers. The second is as a tool to focus the company on driving learning during the early stages. The third is as a device for hedging.

During the initiation phase there is a primary focus on learning which will dictate a minimum sales force deployment. If hiring and individual sales training could be done instantaneously sales force deployment above this minimum would be greatly simplified. At the end of phase one, when each of the sales reps delivers a positive contribution margin, the firm would hire a number of reps necessary to provide appropriate market coverage at every point in time...just-in-time sales reps. The combination of hiring and training lags, the costs of disassembling a sales force, and the uncertainty as to the rate of learning and the ultimate sales yield makes the deployment of a sales force an important strategic decision for companies. A less aggressive hiring strategy can provide a hedge against an unsuccessful outcome. Like all hedging strategies this comes at a potential cost. In this case the costs might include a longer time to breakeven and a slower capture of market share. Using the SLC managers can explore a variety of deployment strategies as illustrated in the NOCASH REVISITED example below.

SUGGESTED MANAGEMENT ACTIONS

A. Set Baseline Revenue Assumptions: Develop a standard quota and an expected individual sales training ramp. Analyze the sales economics for an SLC that has reached the standard quota to determine a contribution margin for the FESR, as illustrated in the NOCASH example.

B. Develop A Baseline Cash Flow Breakeven Forecast: Based on the fixed costs and contribution margin analysis, determine the breakeven revenue and the number of required FESRs to breakeven, assuming the SLC is at the standard quota.

C. Develop An Estimated Sales Learning Curve: Estimating the SLC can be challenging. However, with or without a curve, decisions will be made and consequences observed. Going through the process of thinking about the curve can provide insights into decisions even if the curve is only a rough estimate. See Appendix A for some techniques available to help with this estimation. As noted above management can influence the SLC by the effort placed against the acceleration activities.

D. Apply The Sales Learning Curve To The Baseline Cash Flow Forecast: This requires replacing the fixed assumption of sales yield with a month-by-month or quarter-by quarter estimate of expected yield from the estimated SLC. Using this model develop a realistic estimate of cash required and investigate a variety of hiring strategies as illustrated below.

NOCASH REVISITED

Using an SLC similar to the one shown in Figure 4 and with the time to reach full quota extended over 6 quarters, we explored two polar deployment strategies. One represents an aggressive hiring strategy such as suggested in the original NOCASH example but extending over the first 4 quarters to build out the sales force to serve the potential market. (*The results shown below recognize that there is a hiring lag as a firm builds up its sales force and assumes that hiring is limited to 15 new reps per quarter.*) The other represents a hedging strategy that deploys a minimum number of sales reps to achieve learning and minimize cash burn until visibility into the ultimate success of the company is achieved. Results of these two strategies along with results if no SLC is used are given in Table 2 below.

Metric	Aggressive no SLC	Aggressive with SLC	Hedging with SLC
Total cash	\$12.53M	\$27.08.66M	\$19.98M
Cash to visibility (at end of 4 th Q)	N/A	\$25.43M	\$16.44M
Time to breakeven	Q5	Q6	Q6
Time to reach max revenue run rate	Q6	Q6	Q10

This again shows the underestimation of cash and time required when the SLC is not considered and also demonstrates the trade-off between cash and time to capture market share for a successful company when the SLC is used. Also it provides an example of how a hedging strategy can significantly reduce the cash requirement to gain visibility into the ultimate success of the company.

E. Mobilize The Company For Learning to achieve the SLC estimated in Step C above: The resources of the company should be focused on the “customer frontier” activities and the integration of learning that occurs from these interactions. Potential learning opportunities as described below in the section on Accelerating the SLC should be identified up front.

F. Track Results and Adjust Forecasts and Plans: As the company makes progress in its go-to-market stage, management should employ measurement systems to determine sales yield and learning progress, and adjust plans accordingly.

ACCELERATING THE SLC

As a starting point, identifying the factors that will be important in shaping the SLC will lead to ideas for accelerating the learning processes. As curves are estimated, more ideas will be generated, and once tracking begins it can impact management's allocation of resources to the learning process. Each of the factors in Table 1 above can be analyzed to determine how learning can be accelerated. Asking why you are located at a particular point will also begin a process that can lead to acceleration. The Flycast example demonstrates how a company ultimately found the right product to sell and ways by which the process could have been accelerated.

To put in place an effort to accelerate the SLC, it is imperative to mobilize the entire company to interface with the customers. In addition to the executive management team, the organizational units that will be involved include: Sales, Product Marketing, Marketing Communications, Engineering, and Finance. Each plays a role and has a set of levers that can be employed.

Sales: During the early part of the learning phase the company should view the principle tasks of the sales organization as being the clearing-house for all learning, helping the startup team to interface with customers and improve the product, marketing and sales strategies to be consistent with learned needs. Unlike the sales rep in the more mature company, this early stage sales rep must have tolerance for ambiguity and corporate learning. This rep should be more technically competent and “textured” than those who come in to execute a sales model that has been demonstrated to be repeatable. It is unrealistic and potentially dysfunctional to assign large quotas to these initial sales reps. They should have incentives to focus on the early learning, as well as incentives to support engineering, product marketing and marketing communication as they perfect the product and the collateral material required to move up the SLC. Expecting them to achieve their learning objectives by a heavily commission-based plan will not achieve the company's sales objectives. More importantly, it may also limit the rate of learning. During this phase, a small number of sales reps will not only limit costs, but a small force can actually be more effective in supporting the other groups. In addition to helping with the product development and marketing efforts, the sales organization will focus on:

- selecting and training the channels of distribution;
- developing plans for the hiring and training of the sales force as the company moves up the curve;
- refining the sales pitch;
- establishing training and development programs;
- identifying lead generation mechanisms;
- lining up technical support;
- building the sales force in ways to capture and institutionalize the learning processes from the earlier hires to the later hires (requires a culture that encourages reps to convert mistakes and miscues into value-adds to the learning curve).

Product Marketing: Learning about the product is the primary focus of product marketing during all phases of the SLC. The product marketing group needs people who can bridge the gap between customers, sales reps and the engineering organization. They need to be knowledgeable about the product technology and also able to understand customers and their needs. In the early phase of a start-up, the CEO and his top reports are deeply involved in getting the product right. Therefore, the product marketing group will also have to interface with them. Product marketing can be a major factor in accelerating learning associated with the SLC. It is important that this new role in driving learning in the early stages of the SLC is clear to the rest of the organization and that the product marketing organization holds the product to high standards on completeness, correctness and fit.

Marketing Communications: When to launch a marketing campaign is a key decision the company will face the completion of beta testing. . There can be tremendous pressures to launch a marketing campaign early to support the sales effort. But, when the company is in the early stages of the SLC, where the main focus is on learning, launching a marketing campaign can not only be an expensive use of scarce cash resources, but it can also distract the organization from its primary learning goal and set false expectations among the sales and engineering groups. Perhaps even more importantly, it can set false expectations in the marketplace that will impact the company's ability to establish the correct longer-term market position. During this period, marketing communications should work on developing a flexible launch schedule and lining-up production capacity for collateral materials once they have been developed to support the final product and sales strategy.

Engineering: After a beta is completed (and sometimes even before), the engineering organization faces tremendous pressures to turn to the next product, often referred to as Release 2 in a software company. The rationale is that the initial product is complete and the company needs to begin work immediately on the next one. This is compounded by the fact that the best engineers always want to move on to the next challenge. Cleaning up and making sure that existing products are complete and correct, and have the right fit, are often not seen as the most interesting phases of product development. If companies allow those most intimately knowledgeable about the product to move on, it can significantly slow down the learning required to move up the SLC. Not only will new engineers have to be trained, but even when they are trained, it will typically take them longer to make modifications.

If companies understand the imperatives of the SLC, they may change their approach to product completion. Companies have long discussed manufacturing launch for physical products in terms of “time-to-volume”. This same notion suggests that engineers should be focused on “time-to-quota”. To accelerate learning, management can choose to devote more knowledgeable engineers to the post-beta phase.

Finance: Tracking learning, as discussed above, to determine where you are on the SLC can be important in establishing when to hire a sales force, launch a marketing campaign, and reassign product development engineers to new products. The question is, who should be involved in collecting, analyzing and reporting the feedback generated by the SLC learning process. Although this will vary from company to company, in many start-up companies the Finance group is the keeper of performance measures, so they become the natural place for tracking the SLC. Of course, the important thing is to have it done, not which group does it.

THE SLC IN COMPANIES WITH INDIRECT CHANNELS

Although the preceding discussion focused on companies with direct sales channels, the Sales Learning Curve is equally applicable to companies that go to market with indirect channels. In such cases the company has to perfect its product, marketing and sales process in the same way as has been described above. In a company with indirect channels the company must do that “through” the channel. This typically happens as the company works closely with the channel partners on initial sales opportunities. In addition, the company has to learn how to perfect its channel programs, an additional dimension of marketing and sales learning.

THE SLC IN THE LARGER, MULTI-PRODUCT COMPANY

It is also possible to observe the SLC affect in bigger, established companies. Typical high-tech companies focus on one product for many years. Ongoing development produces newer more powerful versions of the product, as well as added features, and ease of use. These enhancements to the original product are the continued product learning discussed above. However, when companies release a product in a new category (for them), the company has to deal with the same learning phenomena that they did as a start-up bringing their first product to market. If the SLC was not “defined” and tracked at the time, the struggle, and the path that the company traversed to make the first product successful is often forgotten when it comes time to do the next really new product.

Consider the example of Veritas Software, a large software company with three major product categories. The company sells its products through its international sales force of over 2,000 field employees (including sales engineers and consultants). Veritas has had success selling incremental changes to their existing products without pain. But, the engineering and product development teams face a significant challenge if and when they choose to introduce an entirely new product. Salespeople are on a quota and a clock (what is the shortest path to quota before the end of the year...) – they don’t have time to waste on a product that is hard to sell, especially when they have a stable of products that they can sell more easily. Moreover, the large and dispersed sales force is unlikely to be fully versed in the value proposition of the new product. If Veritas rolls out the new product before the product and the sales reps are ready, the effort is likely to meet resistance from the sales force, and perhaps, from customers. Often in these situations, a new product will not meet its expected first year revenue. Failing to meet revenue expectations can adversely impact the product’s momentum (reputation in the sales force), and can ultimately lead to a product being first orphaned and eventually killed. Without an understanding of the SLC, the well-established company loses both the potential revenue from a successful launch and the investment made in engineering for developing the new product.

If Veritas is truly invested in the success of the new product, the company will need to treat the new product like a start-up company would treat its first product. Veritas is a case of a large company that has taken steps to account for the SLC associated with new products in a big company. They introduced a new business group – the Advanced Solutions Team – that is dedicated to rolling out new products. The AST is a specialized team of highly trained sales reps who manage the learning process by capturing customer feedback and making product recommendations before Veritas rolls the product out to the larger sales force.

The AST tracks key learning. Does the product install right? Does it integrate into our existing product offering and the customers existing computing infrastructure? Are we selling the product to the right people? Is it positioned right? Is it priced right? The AST can move the company through the most uncertain stages of the SLC before the product is rolled out to the larger sales force.

CONCLUSION

In the world of startups, many people have tried to understand companies transitioning from "development" companies to "revenue" companies. It is always the most challenging time for both managers and investors, with false starts and many disappointments. Although the conventional wisdom is that we know it "will take longer and cost more", too often we do not plan for this, and as a result, expectations for performance are too high and expectations for required investment too low. We have come to accept that this phase of start-up development is unpredictable. Applying the SLC as an intellectual construct allows entrepreneurial teams and investors to share a common language in understanding this unpredictable phase of the business. In addition, managers can craft tools and systems to better observe and more importantly impact their company's development during this phase. Managers can plan for cash flow breakeven operations and more intelligently monitor progress. Indeed, with an understanding of the SLC it is possible that managers and investors will have more realistic expectations, which could result in a more predictable start-up process, use of cash more efficiently, and developing hedging strategies to reduce exposure.

Appendix A

ESTIMATING THE SLC

Prospectively estimating the curve as part of the planning process has three benefits. First, it allows others involved in the launch to directly communicate their knowledge about the time expected to reach different levels of readiness. The SLC provides a common language with which to discuss the important learning ahead of the company and thereby allows the collective experience of the team to be used directly in the planning process.

Second, the shape of the curve makes clear the timing and extent of the deployment of the sales force is a strategic decision. And, third estimating the curve provides a starting point for measuring the actual curve as the process moves forward.

Although the shape of the SLC will not be accurately known until it is seen retrospectively, an estimate of the curve can be made using a two step process: 1) Using the knowledge of the current product, and past experience with similar products in similar markets, prospectively estimate the curve; 2) Collect data on sales as a hiring plan is implemented and use it to refine the prior estimate.

Prospective assessment can be done in two parts. The first part is an estimate of how long before the curve will start to move upward. The second estimates the shape of the curve as it moves upward. For both, estimating requires an understanding of how the important factors that will influence the learning fit together, and the likely rate of learning for each. For the first part, there may be a set of identifiable tasks that have to be accomplished before a sale can be made. For example, one might determine that for an enterprise software product before the curve will start to move upward: a feature set identified by the beta test must be added; the players in the market segment must be identified and collateral materials necessary to support sales in this market segment must be developed; and, the sales pitch refined. The time for the first task is an estimate that can be made by the engineering group, the second by the marketing group, and the third by the sales group. A PERT chart can be used to capture the time dependencies, if any, on these three tasks and the resulting schedule will provide the earliest that the SLC will begin to move upward.

Estimating the shape of the curve in the second stage also requires the identification of factors that will affect the rate of learning. The process will be less defined than using a PERT chart. Experience with similar processes is the best guide. Figure 8 shows some shapes that are representative of different product and market conditions. Curve (A) might be representative of a product that falls into the "better, faster, cheaper" category where the product completeness, correctness and fit are not factors, the market is well known and the main learning comes from building an effective sales presentation and getting recognition. Curve (B) might represent a company where each of the factors requires some learning and there is a cumulative effect as sales build to the point where a critical mass of customers is achieved. Curve (C) might be appropriate for a company with a product that falls into the "brave new world" category where market acceptance requires understanding and developing a new market, revising the product, and learning how to sell a new product in the new market.

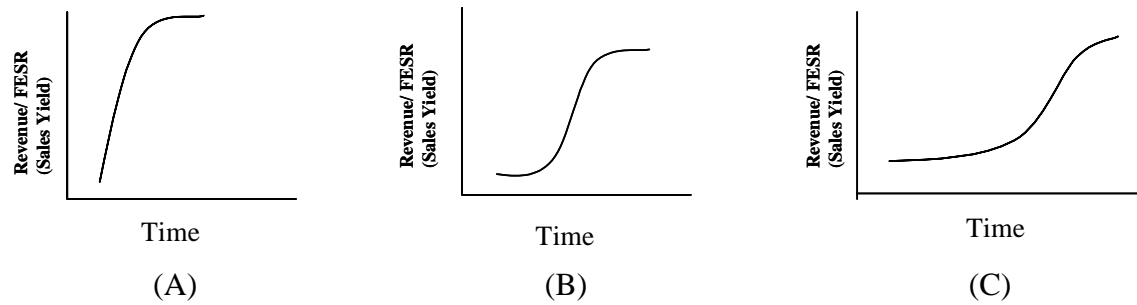


FIGURE 8

It is important to recognize that although the prospective estimation of the SLC has great value as a way of focusing management on learning activities, there will always be uncertainty associated with the rate of learning and the steady-state quota. We do not know with certainty what we will discover, how long it will take, or the shape of the curve. Therefore each curve should be thought of as having a band around it.