Proactive Growth Management: A Bottleneck Approach in Strategic Practice

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Abstract

Today's market environment puts constant pressure on managers to achieve and maintain continuous business growth in terms of new clients, revenue, market share, or profit. Failing to do so limits the companies' access to resources, ultimately threatening their survival and long-term prospects. As a result, it has become crucial for managers to continuously identify and successfully relieve strategic bottlenecks. By generalizing the conventional method used in manufacturing for detecting and alleviating strategic constraints to other functional areas of business, we propose a holistic framework intended to help managers identify, prioritize and execute strategic projects that stimulate firm growth by eliminating the internal and external limitations.

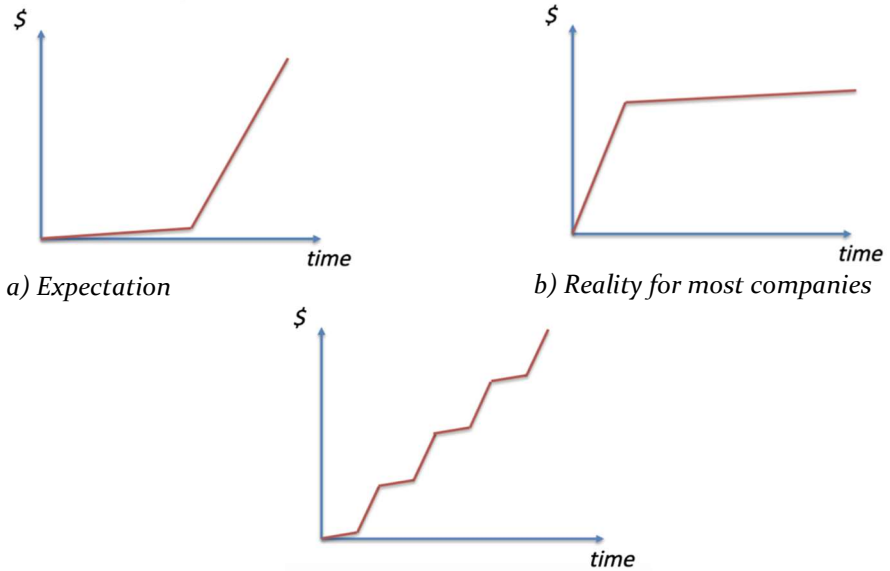
Introduction

The legendary American football coach, Lou Holtz, famously said: "In this world you're either growing or you're dying so get in motion and grow."[1] This maxim perfectly describes the prevalent modus operandi of today's business world. For aspiring new ventures, growth in terms of customers and/or revenue unlocks access to funding and legitimizes the offering in the customers' eyes. The "growth imperative" of capital markets imposes the same pressure on established corporations:[2] Since the profit potential of an existing business model and corresponding market position is already

accounted for in the current share price, the only way of increasing shareholder wealth and securing access to resources is in demonstrating the accelerating growth dynamics.[3] Without growth, a business tends to "suffocate", i.e., cannot access resources and starts a downward trend of losing market position and legitimacy. Empirical evidence collected from large companies suggests that after their growth stalls, fewer than half of the affected businesses can reverse this trend in the observable future; furthermore, if the absent growth is tolerated for over a decade, the chances of turnaround drop to a mere 7%.[4]

One of the popular myths in today's business world is the illusory hockey stick chart of infinite and seamless scaling up: Managers generally believe that a firm's growth (in revenue, customers, profit) should look like a hockey stick (Figure 1-a).[5] This model imagines a world where growth starts out slowly, as a new venture is figuring out its product-market fit and a viable business model. Then, once everything is figured out, the growth trajectory gets established, and performance begins a steady increase, sometimes even exponentially. In practice, this story holds true only for a very small number of companies, and only if one considers a very specific time interval. The reality for most companies and new venturing projects is that growth looks exactly the opposite – an inverted hockey stick (Figure 1-b).[6] These companies grow steadily for a time and then encounter a limiting factor or "bottleneck" of some kind (e.g., a saturation of their targeted market niche, a limited production capacity, or a limited life span of the successful product), and their growth flattens out.

Figure 1. The Organizational Growth Charts: Expectations vs. Reality



a) Expectation

b) Reality for most companies

c) Reality for successful firms

Most successful companies are the ones where management can identify the successive bottlenecks that are preventing further growth and continuously relieve them. After each period of growth, these companies find themselves facing the next bottleneck, relieve it, and then find another, and then another. In the process, it creates a growth curve that looks somewhat like a staircase (Figure 1-c). Indeed, successful growth is moving from bottleneck to bottleneck across different business domains: e.g., marketing, operations, supply chain, and product development.

Taken together, these three graphs illustrate the crux of the current paper. Decision-makers are taught to expect rapid, uninterrupted growth, when the reality is most often the opposite. This can be discouraging, frustrating, and sometimes catastrophic for everyone involved. So what should managers do when their firms stop growing? How can they identify the true problem they are facing? How should they use their limited resources to solve it? How do they know when a problem is solved and it is time to move on to the next one? This paper was written to answer those questions and provide practitioners with a simple, flexible, useful tool to grow their companies using the "Bottleneck Approach". By generalizing the conventional method used in manufacturing to all functional areas of the business, we propose a holistic framework intended to help managers identify, prioritize and execute strategic projects that stimulate firm growth by eliminating internal and external constraints.

Bottlenecks and Growth Management

The Bottleneck Approach originates in the manufacturing industry, where products move through a linear series of steps. If each step occurs at exactly the same speed, the factory is perfectly efficient. Unfortunately, this is never the case. There is always one step that is slower and holds up every other machine in the factory. Usually, it is quite easy to spot the slow machine in a factory because there is a build-up of products or materials around it.[7]

Operations managers know that speeding up any part of the system besides the slowest step will not result in faster production. The only way to grow is to speed up the slowest machine; investments made to any other part of the system will simply create more slack. After the slowest part of the production system is enhanced, the overall speed of the factory will increase until it is constrained by the second slowest machine, which will become the new bottleneck. The operations manager must now focus on speeding up this machine.

A less efficient method frequently embraced in practice is to assume the bottlenecked firm has reached its peak performance and invest in a totally

new setup. The proponents of this approach tend to end up with a large portfolio of inefficient assets.

Yet, it is crucial to note that the Bottleneck Approach should not be limited to the manufacturing function only; rather, it can and should be applied across all business domains. The Bottleneck Approach is designed to make decision-makers more effective, so they can create growth in any organization efficiently. It is intended to be more useful than academic theories and more flexible than existing industry frameworks (see Box 1). Most importantly, it reduces the amount of complexity that decision-makers have to deal with and allows them to focus on one project at a time. This enables organizations to move fast, even when their resources are severely constrained. For consultants who want to show results quickly, the Bottleneck Approach is an extremely effective way to select projects.

Box 1 - Existing Research and Tools

Foundational management theory written by Edith Penrose in 1957 proposes that firm growth is not constrained by industry, geography, or size, and can be achieved through the deployment and redeployment of resources and accumulation of knowledge by skilled managers.[8] This strongly supports the Bottleneck Approach.

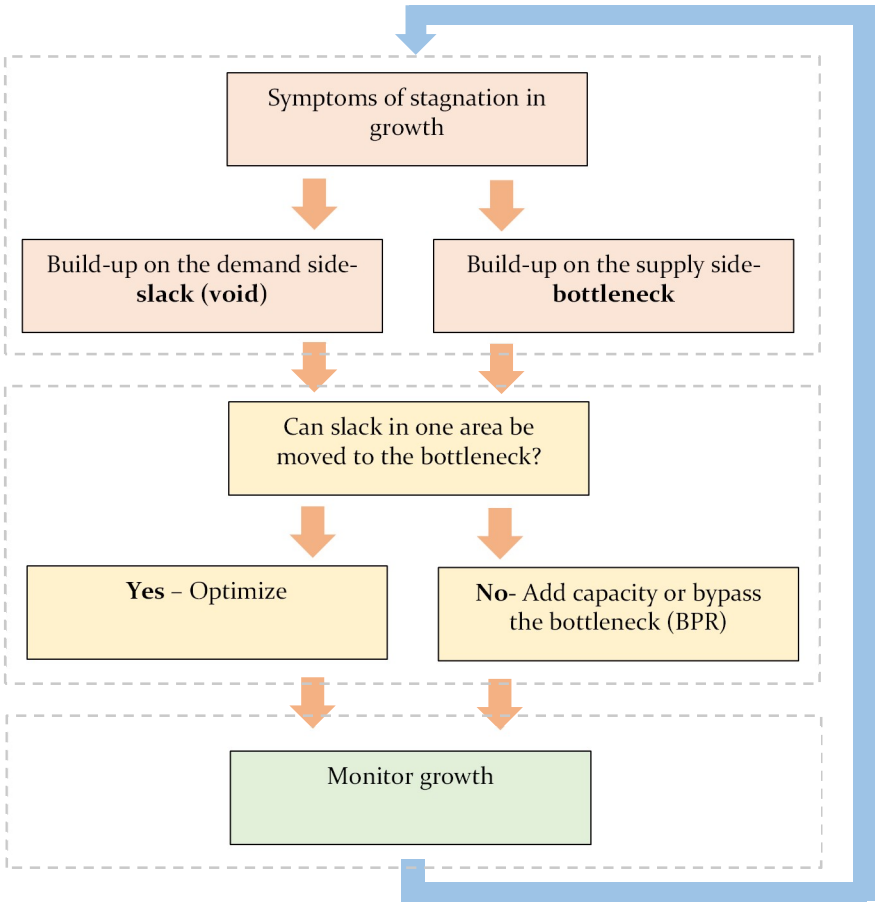
More recently, applied research into theoretical concepts such as the firm lifecycle and "growing pains" provide further evidence that firms encounter bottlenecks at certain stages of development.[9,10] This line of research is severely hindered by the complexity of the business environment and provides little guidance for practitioners on how to get through these bottlenecks.[11]

Frameworks created specifically for industry practitioners, such as the BCG Matrix, McKinsey Matrix, Ansoff Matrix, and Treacy and Wiersma's Value Model, can be very useful in certain situations but are generally designed to assist very large, resource-rich organizations with very large decisions, such as allocating capital budgets.[12,13,14,15] They are less useful for smaller firms and unique challenges.

We propose an iterative model that continuously identifies and relieves bottlenecks as the organization grows and faces new bottlenecks in the journey. Figure 2 illustrates the three-step model that is going to be discussed in the following sections. Figure 3 is an illustration of how the bottlenecks shift as the management resolves them. It is important to note, however, that Figure 3 is not a static model i.e., the bottlenecks are not fixed parts of the process. As the business grows, bottlenecks may appear as limitations in the value chain, but may also appear as there are changes in the internal environment (e.g. changes in the organization, union formation, or demographic changes) or external environment (e.g.changes in technologies, markets, government regulations, or a crisis like COVID-19). The message is that in a business, bottlenecks are not fixed spots, and there is no one-time diagnosis and fix. It is an ongoing process and must be owned and monitored

by the senior management of the department, business unit, or the firm.

Figure 2. Bottleneck Framework

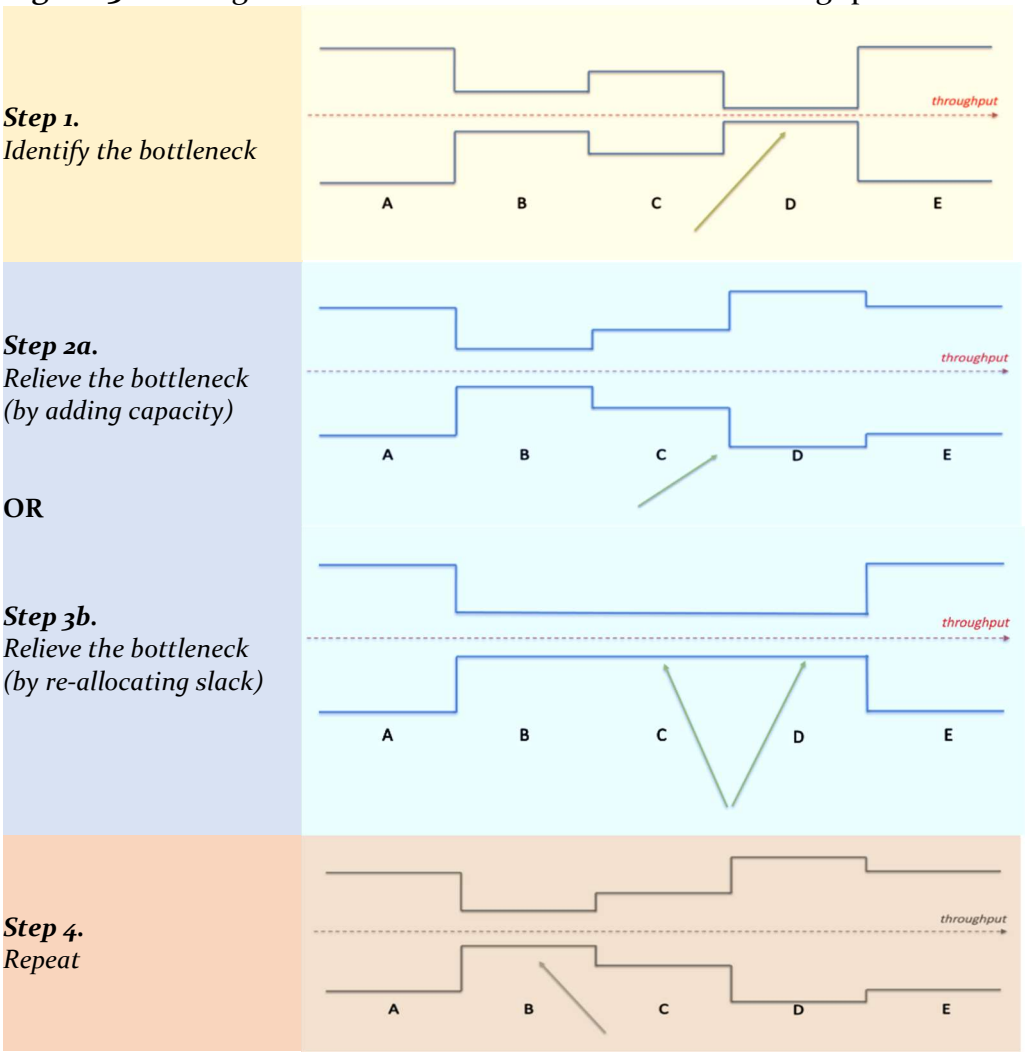


Step One – Identify the Bottleneck

Quite often, firms come to a stage where the revenue or profit growth seems to stop even if apparently everything is running efficiently or to capacity. What is constraining the growth of the organization? Sometimes, answering this question is easy; yet, in most cases, the root cause of the bottleneck is hidden under the surface of diverse symptoms spread across all value chain activities. There are quite a few instances where, in pursuit of growth, firms have made investments in the value chain processes that already have a massive amount of slack and ignored the bottlenecks. This results in a sub-optimal, if any, return on those investments. For example, an airline flying at 50% average capacity (passenger load factor) in existing routes invests in new planes and routes to enhance growth, without realizing that its sales growth in existing routes is being stifled by poor marketing,

sales, or scheduling. If the reasons for growth stagnation are not obvious, firms must audit each link in the value chain.

Figure 3. Shifting Bottlenecks in the Value Creation Throughput



Investigating the supply side of a value chain process, the firm can start by looking for a build-up. Is the restaurant booked solid every single night? Does the company have a warehouse full of orders that are waiting for delivery? Is the line for new products wrapped around the block? A supply-side build-up is a clear sign that the process under audit is a bottleneck for the value creation throughput.

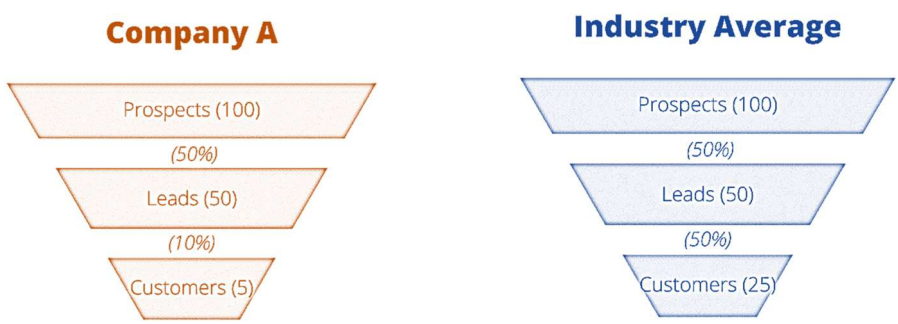
If there is no evidence of a build-up, the firm can start looking for a void or slack. For this, the management must audit the demand side of the value chain process. If there is a build-up there, then the process under audit has a slack (void). For example, if the sales team realizes that their sales

transactions are not getting through because the shipping and logistics department is not able to deliver the products, it is a clear signal that the sales team has slack in the value chain process. The symptoms will show up in the form of sales representatives starting late and leaving early. Are store shelves sitting empty while they wait for new products to arrive? Such voids in the value chain need not necessarily be physical infrastructure; they can manifest themselves through other system issues, such as quality management processes, planning issues or any other decision-making process.

Box 2 - A Bottleneck Approach to Marketing Analytics

A funnel analogy is often used when describing marketing systems. In this analogy, people progress further in the funnel as they learn more about your solution and exit the funnel when they complete their purchase. At first glance, it might seem challenging to apply a Bottleneck Approach to a system where only a small fraction of inputs reach the end successfully, but there is a simple method that can be used.

First, you will need to know what your marketing funnel looks like and where the bottleneck is. It can help to compare your data to that of the industry average. The result should look something like the example below, where the bottleneck is occurring between the identification of the lead and the closing of the sale.



Next you will have to relieve the bottleneck by adding capacity or re-allocating slack. To add capacity, you could hire an extra salesperson. To re-allocate slack, you could train someone from the marketing team to work in sales one or two days a week.

Did the changes relieve the bottleneck? You'll have to continue monitoring the system until this can be accurately evaluated. If the bottleneck has been removed — great! It is time to approach more prospects. If the bottleneck is still there — don't panic! Investigate the bottleneck again and try another method until the bottleneck is relieved.

Normally, the weakest link in the value chain will show build-up before it and slack after it; these are the first and most important signs of the problem causing stagnation in growth. However, it is possible to find bottlenecks or slack at many points in the value chain. If the exact size and location of the bottleneck is not immediately apparent, it can help to draw out a diagram like Figure 3, placing the value chain activities next to each segment (A, B,

C…). This is especially useful when there are two or more bottlenecks of a similar size, which can create the illusion of an effective system.

The national policies for vaccinating the populations against the COVID-19 infection illustrate this process. In 2020-2021, governments looking to control the COVID-19 pandemic first had to decide where to allocate their support resources. Initially, there was no vaccine available, creating an apparent void. It did not make sense to invest significant effort into distribution systems for a vaccine that did not exist yet. Instead, they correctly chose to focus their efforts on companies that were researching vaccine solutions, like Pfizer and Moderna.[16] Once this bottleneck was resolved (i.e., a set of effective vaccines was developed), mass production became the next bottleneck, to be subsequently replaced with effective distribution.

Step Two – Relieve the Bottleneck

What changes can be made that would allow the organization to grow again? Answering this question tends to require a deep understanding of the problem and a substantial amount of creative thinking. This may also mean a strategic choice regarding resource allocation. As we can see in Figure 2, a bottleneck situation offers two options. The first option is to keep the slack and add capacity to the bottleneck to ensure the slack is fully utilized. Since this solution requires additional resources, it may not be possible for a resource-constrained firm. The second option would be to transfer the slack to the bottleneck – optimizating the system without using additional resources. Unfortunately, the second option is not always available, since it is not always possible to transfer slack to the bottleneck. For example, a restaurant is booked solid every night. To eliminate this constraint, a manager must first identify the primary bottleneck – is it the need for additional tables or the need for more waiters? A resource-constrained firm would ideally look for slack within the business. If space is the issue, one would investigate if there is a space in the value chain that can be repurposed to add more tables. If, instead, the waiters are the issue, the restaurant may look at spare capacity in other areas that can be retrained to support service. Obviously, considering the 100% booking situation, some marketing funds (the slack) can be reassigned to increase space or service capacity.

If, on the other hand, there is no transferable slack, the firm has two choices. The first implies adding seating capacity through acquiring additional funding, expansion of the dining hall, moving to a new venue, etc. Alas, sometimes, all these solutions may not be desirable for a resource-constrained firm. The other option implies business process redesign or pivoting the business model. One could, for example, increase the prices on

the dinner menu, double down on delivery (take-out), increase the speed of service, or add more value-added products on the menu.

Similarly, in the warehouse example, if orders are facing a bottleneck of delivery, the firm may add capacity or by-pass the bottleneck by business process re-engineering, e.g., through introducing a process of warehouse pick up or outsourcing it. This is exemplified by Wayfair partnering with Handy to deliver and assemble their furniture.

It is important to consider several solutions when selecting the one that will relieve a bottleneck. The solution (or solutions) that is selected should align with the organization's strategic goals while also relieving the bottleneck effectively.

With respect to the national responses to COVID-19 pandemics, after governments identified that the development of an effective vaccine would be critical to controlling the virus, they had to choose the best way to relieve the bottleneck. Of course, the governments themselves are poorly equipped to develop vaccines, yet have the mandate to support their citizens. As such, a reasonable decision that was ultimately made involved funding local companies working on diverse vaccine variants to maximize their probability of yielding an effective solution. The public authorities continued to provide support to these companies until vaccines completed necessary clinical trials and received approval from the appropriate regulatory body. At his point, the bottleneck could be considered relieved.[17]

Step Three – Repeat

In any management context, a deliberate change attempt, including de-bottlenecking, is followed by a plan to monitor the impact of the change. This, along with the overall proactive management of opportunity-based growth,[18] may lead to identifying a new spell of stagnation over a period of time. As such, de-bottlenecking needs ongoing management attention and cannot be treated as a one-time effort. Bottlenecks may and are likely to re-appear for all manner of reasons, old and new, in any part of the value chain. In general, when a bottleneck stops constraining an organization, it is replaced by a new one, so managers must remain vigilant and be ready to reallocate resources when this occurs.

In the case of COVID-19, when the vaccines were approved, the government looked for the next bottleneck and correctly identified that it would be production. At this point, they made strategic investments into local vaccine manufacturing facilities. When production capacity has increased to the point where it will be able to keep up with demand, the bottleneck will most likely move to distribution, and the government will most likely shift its focus toward this new challenge. And while this is almost

accomplished, the new bottleneck appears to be convincing a large part of the population to get vaccinated.

Box 3 – BALCO:
A Case of Achieving Long-Term Growth through Managing the Bottlenecks

BALCO (www.balcoindia.com) is among the largest aluminum producers in India. In collaboration with the then USSR and Hungary, it established a 100,000 metric tonnes (MT) aluminum plant. Apart from Alumina and bauxite, power (electricity) is the primary raw material used in the production process, accounting for almost 40% of the total cost. While a captive power plant would be an ideal situation, BALCO could not organize resources for it. Thus, securing the electricity supply was the first major ***bottleneck*** *for the company. In an urgency to start production, Balco contracted with the local power company, MPEB, to supply 25% of its power needs. The initial bottleneck was relieved, and the production started meeting the current market demand.*

A new bottleneck - capacity*:*
After two years of operating under the conditions of heavy demand in the market, the customers of BALCO started experiencing long wait times. Market conditions were ripe for increased production, but the bottleneck again was power. BALCO again relieved the bottleneck by requesting MPEB to increase the power supply. While MPEB agreed, it simultaneously substantively increased the price. Production of BALCO increased to 50 % (from 25%) of installed capacity. While the bottleneck was relieved and the company was able to meet the market needs, this situation created significant cost pressure. While sales went up, profitability went down.

Next bottleneck - cost:
With time, because of the rising competitive pressure, BALCO's profits became unsustainable, slowly getting eroded by high production costs, mostly due to power cost. Products were not shipping out as in the past. This time, the cost of power became the bottleneck, as opposed to the power availability in the past. The problem needed a new solution, and BALCO decided to remove its dependence on the monopoly supplier MPEB. With government and supplier credit, BALCO established its own 270 MW captive power plant to meet its power needs. With the backward integration, the power price came down to one-eighth of the MPEB price. Production cost bottleneck was relived, and BALCO became competitive again in the market. This also doubled production, to full installed capacity.

Market side bottleneck - business model:
BALCO's business model mainly relied on direct sales to industrial business customers. These users were large companies; there were no channel costs and BALCO got direct feedback on the product. The product was directly shipped from the production facility.

A small part of the production was sold through traders and consignment agencies. This channel met the needs of the smaller customers, who could not buy in bulk and had shorter purchase planning cycles. Profits in this segment, however, were less due to high channel costs.

While this business model serving mostly large customers worked well for BALCO for a long time, eventually, the problems started emerging. Direct sales stagnated, and the company was losing market share. The issues included the requirements of very large order size (minimum 9 MT), long shipment times, complicated sales process, and excessive

bargaining power of intermediaries (traders and consignment agencies). The bottleneck was identified. After analyzing the internal problems, reviewing the sales models of competitors locally and globally, the de-bottlenecking strategy was developed. Instead of selling from the isolated production plant, BALCO opened its own depots closer to the customer clusters. Bottleneck was relieved: BALCO pays no channel commissions, moves closer to users to get feedback from small and big customers, and the sales cycle gets substantially reduced. Growth has picked up, and market share improved.

Bigger bottleneck - international competition:
After few years, due to the opening of the economy with changes in government policies (e.g., WTO), imported aluminum flooded the local market. Imported products were far cheaper than BALCO's. Sales went down, and production had to be curtailed. This time again, production cost was the bottleneck to growth. The solution that emerged this time was economy of scale. BALCO increased its capacity ten-fold, to 1'000'000 MT in few years. Unit price went down, bottleneck relieved, and BALCO is selling the spare capacity in international markets.

Conclusion

The Bottleneck Approach offers clarity for managers, enabling them to make growth-effective decisions quickly, no matter their available resources. This can help organizations understand and respond to rapid changes in their external environment. Ultimately, it is intended to provide a simple, flexible, repeatable framework for growing firms.

There are, of course, some limitations to the Bottleneck Approach. It is not a blueprint or a map that lays out the path from 0 to 100 with absolute certainty. As such, decision-makers will need to remain in touch with their operating environment, constantly collecting data and analyzing it to ensure they are still solving the right problem. The Bottleneck Approach also encourages decision-makers to solve one problem at a time, which could create confusion when there are multiple bottlenecks acting simultaneously. Finally, identifying and relieving bottlenecks requires firm- and industry-specific knowledge. Practitioners will require a certain amount of practical experience and theoretical knowledge to make effective use of the proposed framework.

Despite these limitations, the Bottleneck Approach presents an opportunity for decision-makers to grow their firms quickly.

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The authors would like to acknowledge the support of Mr. Binod Srivastava, Associate Vice President at BALCO, in developing the BALCO case.

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