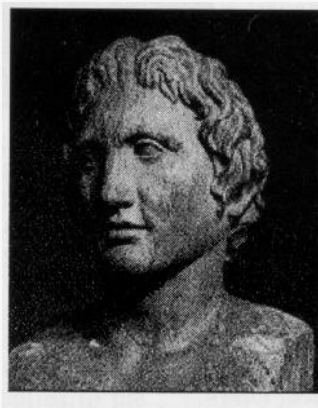


# Logistics Lessons From Alexander the Great

*If Alexander were a CEO  
today, . . . ”*

BY  
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# Lessons Learned From Alexander the Great

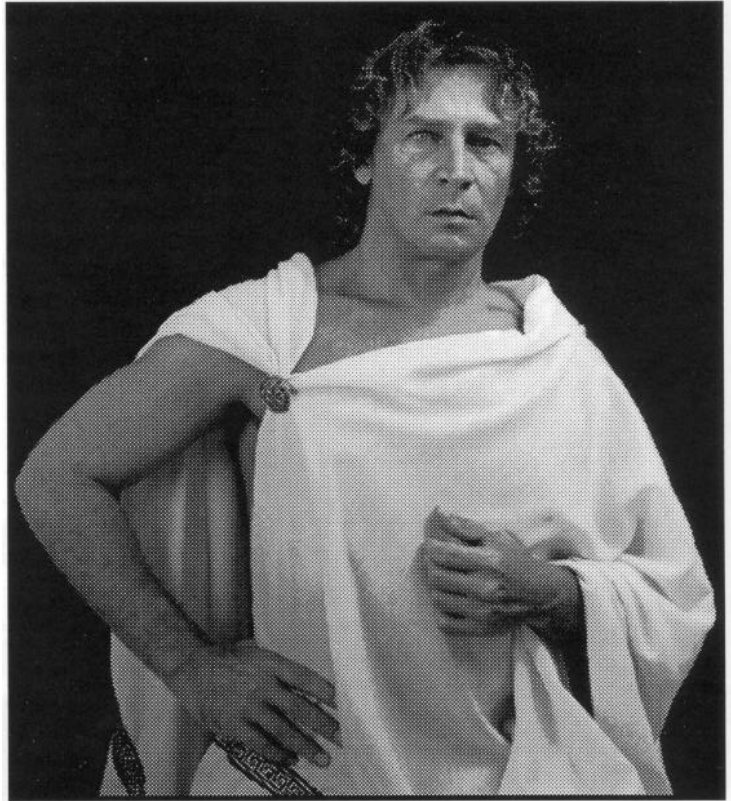
**I**N 356 B.C., A SON AND heir, who was to become one of history's greatest logisticians, was born to King Philip of Macedonia. Philip built a unique, strong, and bureaucratic domain for his son.

Unlike traditional kingdoms of the time, Macedonia had full-time troops, who were well-trained in maneuvers and outfitted with newly developed weapons. So important to the kingdom were the elite troops that they remained on duty even during harvest seasons, when all possible manpower was normally required to work in the fields.

At age 16, Philip's son Alexander was already a general in the select army. He was ravenous for conquest and was leading his troops to victory after victory. At age 20, a murderer's knife elevated Alexander to the throne. Quickly, he built his reputation, striking fear into the hearts of those who dared oppose him. He ruled, conquered, and assimilated countries—including Greece, Persia, and India—into his domain for a short 13 years until his death in 323 B.C.

Over the next 2,000 years, Alexander the Great would become a logistics legend, inspiring other great rulers, including Julius Caesar and Napoleon, even as they were daunted by their inability to achieve as much as Alexander had in his short lifetime.

Alexander's success was not an accident. He was able to consistently defeat enemy armies and expand his kingdom because of his proactive preparation and logical approach to war-



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Logistics  
planning can  
be a key factor  
in business  
success.

by  
Timothy  
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fare. Some of the key factors in his success were:

- Inclusion of logistics in strategic planning
- Detailed knowledge of opposing armies, the surrounding terrain, and harvest calendars
- Innovative incorporation of new weapons technology
- Maintenance of a single point of control

These same factors can make any organization ferociously successful in today's complex business environment. Throughout history, the armies and organizations that have emulated Alexander the Great's approach to warfare have created dramatic results. There are many striking parallels between Alexander's ancient organization (the Macedonian army) and today's

modern corporation (doing battle in the marketplace). This article examines Alexander's implementation of logistics principles and how these same principles can be applied successfully to the supply-chain management process of organizations today.

## Logistics and supply-chain management

Alexander's 35,000-man army could carry no more than a 10-day supply of food when remote from sea transport.<sup>1</sup> Yet, he and his troops marched over thousands of miles at a rate of 19.5 miles in any one day without problem.<sup>2</sup> In the process, Alexander conquered every nation and city on which he set his sights. At the most basic level, he was able to perform his legendary feats because he included logistics and supply-chain management into his strategic plans, just as any modern-day corporation should do to maintain a competitive edge.

King Philip had been murdered just before he was preparing to travel to Thebes and Athens to quell threatened rebellions. When Alexander replaced his father as king, he took over the Macedonian army and personally led them in Philip's place. He timed his departure so the 30-day supply of rations, carried by sea transport, would last until 10 days after harvest at the first destination city. This provided a seamless supply of food and water for his men until the conquered city could provide Alexander's men with needed additional supplies. (To avoid as much future bloodshed as possible, Alexander completely destroyed Thebes and its inhabitants, helping influence target cities to surrender instead of fight.) This type of planning is consistently found throughout Alexander's campaigns.

In his book, *Alexander the Great and the Logistics of the Macedonian Army*, Donald W. Engels concludes that "... when the climate, human geography, physical geography, available methods of transport, and agricultural calendar of a given region are known, one can often determine what Alexander's next move will be."<sup>3</sup>

In addition to synchronizing his troops' actions with harvest cycles, Alexander used the following logistical tactics to ensure an open supply chain throughout his campaigns:

- He maximized swiftness of action and flexibility of the army by eliminating the usual traveling team of servants, wagons, and spouses from the marching army.
- He developed alliances with conquered and friendly locals, which enabled his army to be constantly provided magazines of provisions. (Inspired by Thebes, many cities surrendered to Alexander's army before fighting, and subsequently pledged their support and supplies to the Macedonian army.)
- He marched along rivers to provide easy access to sea transport, which could deliver tons of supplies compared to 200 pounds per beast of burden.
- He set up bases to provide shelter and supplies prior to the army's arrival. (These bases were supplied by surrendered cities, ships, or allies.)

- He ordered forced, or double-time, marches to conserve supplies in difficult circumstances. This reduced not only the time needed to complete the march but also the need for additional supplies.

It may seem surprising today to consider that arguably the most effective organization in the history of the world considered logistics and supply-chain management as integral parts of its strategic planning. But it's hard to argue with Alexander's success,

Ironically, despite today's complex business environment, most boardrooms still do not give proper consideration to the logistics side of doing business, primarily because its function has traditionally been viewed only as a cost of doing business. Logistics professionals in many companies today have failed to educate their executives on how proper logistics management can add value—a fact on which Alexander the Great based his achievements centuries ago. Alexander showed the world for all time that effective logistics management can be a weapon in itself.

Companies that incorporate logistics planning and management into long-term business strategies can achieve tremendous benefits. Viewing logistics at the strategic level is the best and possibly only way to actually produce competitive advantages in the areas of purchasing and distribution. Given the fact that many top

executives today do not view logistics management as a strategic part of the company, it will be a daunting task to have logistics invited into the boardroom and obtain an investment in improving supply-chain efforts.

The most effective ways to convince top management to invest the dollars and time necessary to address logistics and make them an integral part of strategic planning include the following:

- Quantify specific opportunities to reduce costs, cycle times, and service failures. The key word here is "quantify." Many companies know there are opportunities to reduce cycle times and costs, but do not know exactly how much they can save by making logistic changes. CEOs will not invest money or make changes without a specific benefit in mind.
- Tie specific opportunities to options that will enable growth in sales, a reduction of overhead, and/or the ability to differentiate the company from competitors.
- Prepare and preview presentations with a cross-functional team to overcome internal objections and garner support prior to high-level strategy meetings.
- End the strategy meeting with a specific request that the CEO can approve. In other words, strike while the iron is hot and close the sale.

While these steps require significant efforts and successes to prove fruitful in the long run, there are modern-day examples where logistics planning has breached the boardroom and created real value for the company.

"... Alexander the Great. His name struck fear into the hearts of men. Alexander the Great became a legend 'mongst mortal men..."

Iron Maiden "Somewhere in Time." 1986

## Two successful examples

Through careful logistics planning, Nalco Chemical Company was able to develop an innovative method of delivering chemical products to its customers, which previously were having problems with their packaging and experiencing chemical spills during delivery.

Traditionally, Nalco's chemical products had been shipped in drums, which were spill-prone and required extensive, expensive, and dangerous handling to transfer the chemical to the place of final application, where they ultimately had to be stored or destroyed.

Nalco's engineers, however, studied the problems and developed a returnable stainless steel container that completely changed the manner in which chemicals were delivered. Called Porta-Feed, the container eliminated dangerous and time-consuming handling on the part of the customer, as well as the costs of waste disposal.

In the early 1980s, Nalco invested significant resources to developing a large fleet of self-contained chemical storage and delivery units, something its competitors could not do. This was a good example of top management taking a leap of faith and making a clear-cut decision based on the knowledge of the product it had to market.

Nalco had no clear payback period in mind, no pattern of success to follow, and no clear justification for its investment. Nalco's executives had to strike a balance between any doubts they had and the analytical vision that presented itself. They had to act with a degree of well-based intuition, and agree to include logistics in strategic and resource planning. Although the decision to market was made without benefit of quantification, the end result was a strong competitive advantage and return on investment.

Another modern example, which demonstrates how an organization created competitive advantage through value-added services, is Sears Logistics Services (SLS), the logistical arm of Sears, Roebuck & Company.

According to Bill Kenney, vice president of strategic planning for SLS, Sears decided at the board level to make logistics management a part of strategic planning. Following investments in human resources and advanced logistics technologies, SLS distribution centers were able to deliver goods to any store location in its system shelf-ready. This not only saves stores time and money, but also allows these retail outlets to leverage promotional expertise originating from the corporate level.

In addition to adding value for its customer, in this case Sears itself, SLS provides a competitive advantage through differentiation. For example, in many cases, a washing machine ordered by 3 p.m. can be delivered and installed the following day.<sup>4</sup>

## Knowledge is power

In 333 B.C., Alexander entered the city of Tarsus, promptly contracted malaria, and was incapacitated for two months. During this time, Darius, the king of Persia and enemy of Alexander, decided to take advantage of the situation and marshaled his 160,000-man army to march toward Tarsus. Alexander's intelligence organization, however, alerted the recovering king so he could respond.

Alexander knew Darius would need to hold battle in the

If Alexander were a CEO today, he would:

- Include logistics in strategic planning
- Consistently make changes in his organization that were demonstrated to provide specific benefits
- Develop a working knowledge and detailed understanding of his customers and their products, competition, industry, logistics requirements, and technologies and utilize this knowledge, along with other assets, to develop competitive advantages, market share, and profit
- Appoint a single person to lead all logistics functions and participate in strategic planning sessions
- Develop alliances with key suppliers and service providers, accessing their infrastructure by allowing them to entrench themselves in his own company
- Utilize technology and other business tools only to the extent that they further the goals of profitability and competitive advantage

In fact, if Alexander the Great were a CEO today, he would strike fear into the hearts of his competition.

nearby Amuq Plain, which would provide ample space to maneuver his large army. Although Darius was well-supplied, his supplies were not limitless because his staging area was landlocked.

Alexander then decided to mock the Persian army by holding military games, celebrations, and religious activities, even though an army four times larger than his own was camped a small distance away. Drawing on his own sense of intuition, Alexander felt that this mockery and Darius' own dwindling supplies would force the Persians to leave the spacious Amuq Plain and advance toward him. This would eliminate the tactical advantage of the large plain, replacing it with the reality of marching through narrow passages and swamps—a situation much more favorable to Alexander's smaller Macedonian army. In the days that followed, Alexander's army defeated the Persian army in the narrow plains into which Darius led his troops.

This story tells the importance of advance knowledge in both war and business. Alexander knew the details and related ramifications of his competition (Darius and his army), its strength (160,000 men), its weakness (limited supplies), the industry (the terrain), and best practices (how to exploit the

situation to his advantage).

Thus, Alexander learned 2,300 years ago what some companies are just learning today—that limited benchmarking, training, education, constant monitoring of customer needs and desires, and cross-functional information sharing provide effective business results.

In the area of limited benchmarking Alexander was, in many ways, best in class. He could not always follow a similar organization's pattern of success, but could, instead, rely on his knowledge-based intuition. Benchmarking, while a good tool to use, cannot be relied on when developing innovative solutions. For modern organizations, this implies they must continually challenge their world view and themselves to meet changing business demands.

Alexander did not rely solely on process knowledge (the art of war, for example), or on technical knowledge about his competition or the terrain, but rather combined both to develop a strategy that allowed him to meet a specific need. He rarely, if ever, lost a battle. Both SLS and Nalco are modern-day corporations that have taken the same approach.

### Innovatively incorporating technology

In a military scenario devoid of computer tools and mechanized weapons, technology primarily refers to weapons. Alexander's father, King Philip, invented a new weapon called a sarissa, which was essentially a 20-foot lance. Alexander used this new weapon (technology) to his advantage. The men in the rear rows of the army's phalanx wielded the sarissas, providing protection to the front rows of the infantry.

Tradition holds that at a battle near Troy, Alexander's army, using sarissas, defeated a combined Persian and Greek army of 40,000 men and only lost 110 soldiers in the process. Because of this success, Alexander did not have to do battle through the rest of Asia Minor, as every state in his path surrendered to him.<sup>5</sup> Clearly, using weapons (technology) effectively was a critical part of Alexander's victories.

Unfortunately, today many companies use current weapons (business tools) to their detriment. The challenge is great. The complex and rapidly changing business environment provides more options among technological tools and services. Any of them can drain a company's financial and mental resources if not properly utilized. Today's challenge to business is to prudently choose weapons and fully exploit them to meet specific logistics requirements.

One mistake companies commonly make is to buy technologies without taking the time to explore how best to utilize technology already installed. Today, manual just-in-time systems have saved companies millions of dollars through inventory reduction, while many multimillion-dollar computerized inventory systems have been installed with no clear resulting benefit.

A logistics organization has significant opportunities in this area. Instead of trying to manage the supply chain by investing in state-of-the-art systems or new robotic warehouse features, companies can focus on fully exploiting available resources. Some of the most commonly underexploited resources are supplier assets. Many companies today could benefit significantly by using a carrier's distribution network for cross docking, zone skipping, pooled distribu-

tion, or dedicated asset management and control programs. Or, a supplier's just-in-time and other business tools could be used. Companies can also enjoy dramatic improvements in logistics management without significant and redundant supply-chain investments through partnerships with logistics experts.

The leveraging of supplier infrastructure is, to some degree, an opportunity for virtually every company today because most supplier-customer relationships are transactional in nature. A transactional relationship focuses on processing orders, shipping products, and negotiating the lowest price. Unfortunately, this can prove to be an ineffective way to do business because the purchase price of a product is only one cost factor. The price does not address any concerns of the logistics provider, which can be a significant percentage of the cost of doing business.

Within transactional relationships, logistics suppliers constantly feel the pressure of competition and have no level of comfort that they will keep the distribution business for an extended period of time. The logistics provider, therefore, is prevented from investing significant amounts of money or resources in the customer because there is no promise of a return on that investment.

A more mutually beneficial relationship between customer and logistics providers is a strategic relationship. Working together to solve supply-chain needs provides third-party entrenchment and enables the logistics provider to invest assets and technology in the customer. In a strategic relationship, the customer awards a specific part of the business to the supplier and agrees to continue doing so as long as the supplier adheres to all the quality, service, and cost standards established during the negotiation process. (This is how SLS has enjoyed its success.)

In addition, the logistics provider and the customer share proprietary information that can be used to better manage the supply-chain segment of doing business. With this type of partnership agreement, a service provider can plan for an extended payback period with the customer and has enough information to evaluate logistics opportunities in order to add value with existing resources. Experience indicates that companies like SLS use a core group of expert third-party service providers (strategic alliances) to reduce costs by as much as \$50 million annually.

When one considers that more than half of a typical manufacturing company's annual budget is spent on purchased materials, services, and distribution, it should be clear to top management that this is one of the most important areas in which a company should improve. Too many companies, however, do not strategically consider all of their logistics options.

Alexander the Great shows us that alliances with service providers are critical to the success of an effective organization. He understood he would not be able to leave the seaside unless he could obtain supplies from productive cities and nations along his path.<sup>6</sup> Developing similar alliances is a significant undertaking and requires the following if they are to be successfully implemented.

- Complete information sharing (forecasts, costs, strategic plans, etc.) between partners along with trust, which must first exist between customer and third party
- Cross-functional implementation of strategically planned logistics

- Regular operational and performance reviews
- A commitment of supply-chain assets and management procedures
- Involvement in strategic planning and integrated logistics
- A fair sharing of partnership benefits

Whether the weapon is a sarissa or the latest inventory control technique, effective integration of information technology is critical to success. In addition, to be as effective as Alexander the Great, the resources of allies must be used.

## A single point of control

Like Alexander, most great logisticians understand that while knowledge-based decision making and empowerment can be relegated up to a point, there ultimately must be a single point of control, a place where the buck stops, a CEO, who is held accountable.

Alexander made the decisions for his army. He was the central point of control, managed the logistics system, and incorporated it into the strategic plan. While modern CEOs should not personally run the logistics management function, they should appoint someone to run this critical area. This person should think like and report to the CEO.

A modern-day military example of this occurred during the recent Gulf War. Gen. Colin Powell, chairman of the Joint Chiefs of Staff, was the highest ranking military officer and primarily served as liaison between the army and President George Bush. Gen. Norman Schwarzkopf actually planned specific military battles and had final battlefield responsibility for the implementation of the policy developed by Powell and Bush.

Together, the triumvirate of Bush, Powell, and Schwarzkopf developed a strategic plan to defeat the Iraqi army. But the plan was so immense in scope and required so many troops and so much equipment that the equivalent of all of Alaska's inhabitants and their personal effects had to be transported to the Middle East and be prepared for deployment.

The man responsible for executing this logistical part of the plan—the single point of control—was Lt. Gen. Gus Pagonis. Following the quick victory, Powell gave much of the credit for the successful logistics management of the war to Pagonis. In an interview, Pagonis, who now heads up the logistics function for SLS, described the logistics plan he developed for the Gulf War as based, in part, on the approaches of Field Marshal Erwin Rommel, who led the German Panzer divisions to success during much of World War II, and Alexander the Great.<sup>7</sup>

Pagonis' logistics plan was a significant departure from tactics used in most wars for the last 1,000 years. Schwarzkopf's staff was very skeptical of the plan. The fact that they outranked Pagonis could have made it virtually impossible for Pagonis to carry out his plan. Schwarzkopf, however, liked the plan and Pagonis' enthusiasm and did the one thing that would allow Pagonis to implement his plan. He promoted Pagonis and gave him complete responsibility for all logistics: land, air, sea, and rail.

Based on this new authority, Pagonis was able to successfully get the right troops and equipment to the right places at the right time in the right working order. With this single point of control, the land operations portion of the Gulf War

lasted 100 hours, and the rest is history.

Putting this logistics success in perspective, Gen. J.H. Binford Peay, vice chief of staff, U.S. Army, stated, "We need to understand that the Gulf War did not take 100 hours to win. It took 20 years.<sup>8</sup> In the previous 19 years and 361 days, the army prepared through weapons development, training, intelligence gathering, and more training. And Gus Pagonis prepared by developing his approach to logistics."<sup>9</sup>

The point to remember is that without complete authority—a single point of control—for all aspects of the logistical process, Pagonis would not have been able to implement the creative and effective supply-chain solutions that were necessary for winning the war so dramatically. In addition to having the ability to effectively marshal forces, a leader with authority over all aspects of logistics can help a company avoid the disjointed style of operation that leads so many organizations to mediocrity.



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Today, more than ever, a single point of control is necessary to maintain a clear vision for an organization involved in logistics management. For example, many widely accepted business practices today, such as total quality management teams, process management, and ISO 9000 registration, optimize portions of a company's existing operations while implementing ways to improve upon them.

Too often, however, the optimization of one task or subfunction is completed at the expense of another subfunction. In one case a company decided to reduce inventory by asking the supplier to deliver daily and maintain local warehouses. Although the company's financial ratios improved, costs were only shifted within the supply chain.

To achieve real improvement, the company should have developed a means by which inventory could be reduced throughout the supply chain, possibly through forecast sharing or multitier communications. If separate groups within an organization work individually on improvement efforts, this type of suboptimization will occur. If a single point of control coordinates the efforts, true operational and administrative improvements can occur.

Although Alexander personally led the logistics organization of his army and included it in strategic planning, this does not mean logistics operated in a functional silo. Rather, much like today's modern-thinking, advanced corporation, Alexander's decision-making process involved cross-functional information sharing.

Consider the previously discussed example of Alexander vs. Darius. Alexander, stricken with malaria and in a weakened state, had to rely upon other decision makers within his organization to provide him with critical data so he, the ultimate, single point of control, could make the final decision.

He could not have done so if differing groups monitored enemy locations, terrain, harvest cycles, locations, strengths, weaknesses, and strategic planning without sharing the information with him. To have not funneled this critical cross-functional information through Alexander would have led to defeat. Clearly, a major component of Alexander's success was that critical information was shared with the final decision maker. In Alexander's kingdom, individual turfs or divisions did not exist.

Like Alexander the Great and his organization, a modern corporation cannot be fully effective and productive if bits and pieces of its infrastructure are managed by different people sharing disparate philosophies and with no shared culture or central point of contact and control. In truth, effective logistics management processes today are largely a function of having cross-functional, shared information with a single point of control.

In organizations where purchasing, shipping, receiving, traffic, production planning, forecasting, and customer service do not report to one person with an overall responsibility for supply-chain management, opportunities for creating increased cost and service efficiencies will fall through the cracks.

Alexander the Great was so named not because of his physical stature, but because of his philosophies, strategic planning, and accomplishments. His unification of much of the civilized world made the later Hellenistic period possible and provided an example for organizational excellence for millennia to follow—right up to the recent Gulf War. The Macedonian army, under Alexander the Great, stands—2,300 years later—as one of history's most effective organizations.

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