

Choosing the right material handling system #4: How much will it cost?

It's not easy to select the right material handling option for manufacturing and industrial operations. Forklifts, cranes, rails, transfer carts, wheeled casters, air casters, and more – the array of choices can be overwhelming. In this series, we're breaking down the decision into a series of straightforward, step-by-step questions.

First, we asked [how much the load weighs](#). Then, we looked at [maneuverability and flexibility requirements](#). Next, we considered move frequency and distance. Today, we're evaluating cost considerations.

Here's a critical question in the quest to find the perfect material handling system for any given situation: financial considerations. After all, different move options have wildly different cost factors to consider. A large-scale operation could easily spend millions of dollars on gantry cranes, for example, whereas a small-scale warehouse facility might only use rolling carts that are barely a blip in their annual budget.

However, the cost question has several different dimensions. A top-line quote or proposal from a vendor may not yield a complete picture of the system's total costs, especially over its full lifetime.

Initial cost

To start, consider the up-front outlay, usually a capital expense whose magnitude can vary widely. This amount will unavoidably be influenced by answers to the previous questions in this series. See the first column, "Equipment," in the table below, which showcases how the weight of the load can affect costs. In general, heavier loads are more expensive to move – but not always! Don't make any assumptions without doing cost research first. Air caster equipment is relatively inexpensive even for enormous loads, for example.

Also think about the total cost-effectiveness of the material handling system, or the value it produces over its lifetime. For instance, installing a rail system can require a hefty upfront expense; but if the fast, continuous movement of product through a facility can increase throughput and overall productivity versus a lower-cost material handling system, the lifetime ROI of the system can justify the initial expense.

Costs	Equipment			Installation	Operation	Training	Maintenance
	Weight of Load						
	Low	Mod	Heavy				
Air Casters	Moderate	Low		Low	Low	Low	Low
Conveyor	Moderate	High		High	Moderate	Moderate	Moderate
Cranes	Very High			High	High	High	High
Forklifts	Moderate	High		Low	Low	Moderate	Moderate
Rails	Moderate	Low		Low	Low	Low	Low
Transfer Carts	Moderate	High		Low	Low	Low	Low
Wheels	Low	Mod	High	Low	Low	Low	Low

Operational and related costs

Beyond the initial Capex expense, organizations also need to think about the ongoing operational expenses associated with the system. Some solutions, like cranes and forklifts, require trained, certified personnel. Right away, the operation will begin incurring new costs: putting personnel through training or paying a premium to hire trained staff, paying for certifications, paying the operator for the time spent operating the system, and incurring opportunity costs if the operator is busy over here when they're simultaneously needed over there.

Secondary costs

In addition to the Capex and Opex outlays, installing and/or using a given material handling system may necessitate secondary expenses. For example, the facility itself may need repairs or reconditioning to support the system. [Porous, uneven floors](#) will interfere with normal air caster operation, for example. Mitigation measures may be relatively inexpensive in the end, but it's still a cost that needs to be considered. Another secondary cost has to do directly with [Question #2, maneuverability](#). If the solution selected is not flexible (perhaps it's a permanent installation, like rails or cranes), what happens if you need to change floor layout? It'll cost you.

Growth costs

An oft-overlooked expense is the cost to grow. Can you increase load handling capacity without increasing operational and other costs at a commensurate (or, worse, exponential) rate? If you install cranes or use forklifts that are only rated for mid-size loads, but find yourself suddenly needing to move larger loads, how much will it cost to accommodate the new weight class? Alternatively, even if weights stay the same, what if your facility needs to accelerate production and move loads at a faster pace? Can your system scale to meet changing demand without adding cost?

For more guidance on this question, please see our white paper "[Selecting the right load handling equipment](#)." There, we take an in-depth look at different kinds of costs to consider. We also assess six other questions that organizations need to ask to pick the right load handling system. Download the paper [here](#).