ARC STRATEGIES

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Improving Warehouse Performance: Best to Focus on Process or Technology?

ARC
Advisory Group

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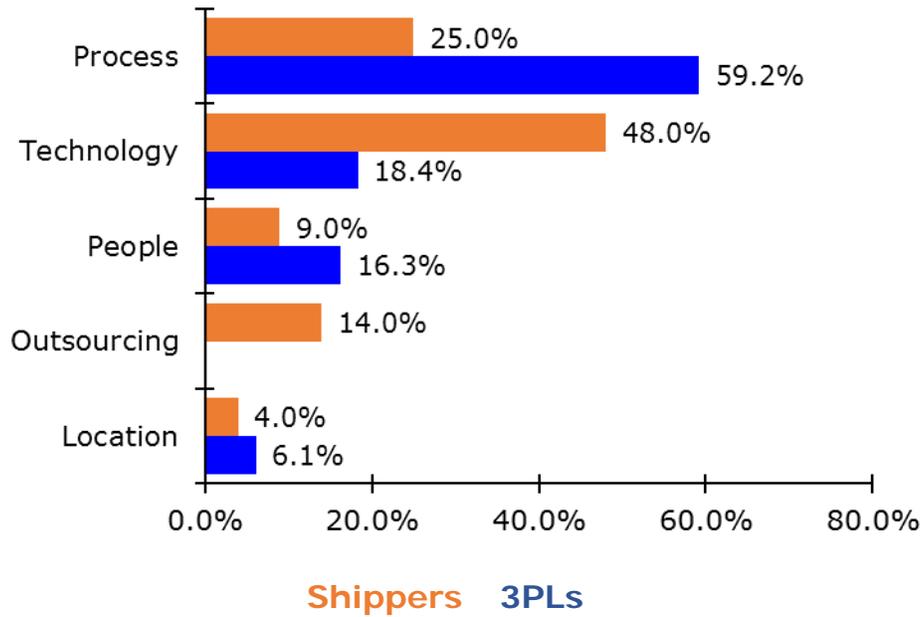
Shippers   3PLs

**Shippers Implement Technology to Lower Costs;
3PLs Focus on Process Improvements**

Process   Technology
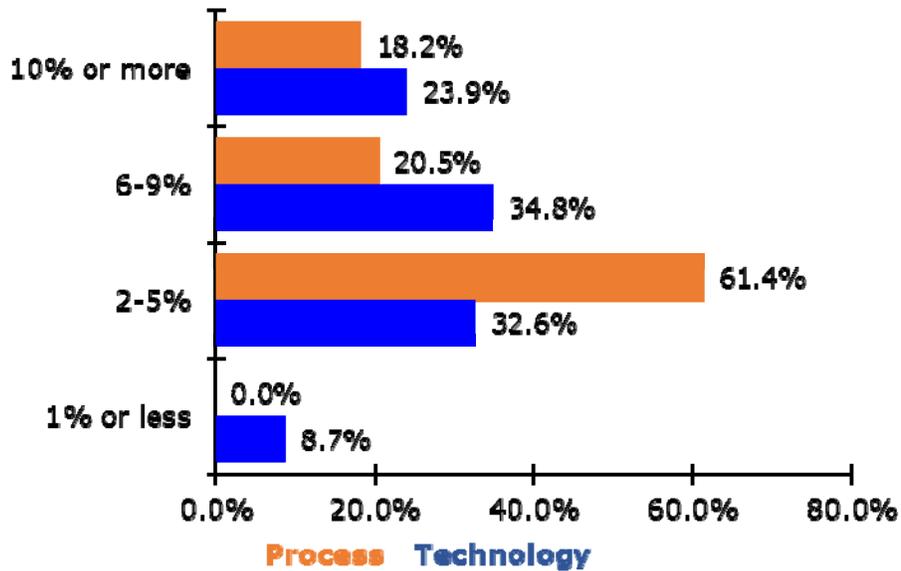
**Both Technology and Process Projects Can Offer
Robust Distribution Cost Savings**

Executive Overview

Where should warehouse executives put their efforts to get the maximum payoff? Does implementing technology or putting a process program in place yield better results? To answer these questions, ARC Advisory Group conducted a survey that included the question: "Over the last five years, what change led to the greatest improvement in distribution costs per unit shipped?"

> By asking about a company's <u>best</u> tactic for reducing costs, this survey focused on *atypical* results! This report provides a *comparative analysis* of technology and process projects.

When it comes to improving the cost performance of the warehouse, shippers' best results have come from implementing technology; while 3PLs best results have come from process improvement programs. In many instances, technology is just not as viable an improvement strategy for 3PLs as it is for shippers. Further, large 3PLs report that potential customers often look for continuous improvement programs.

In terms of payback, *process* clearly beats *technology.* In process programs, over 20 percent of respondents reported being able to launch a program while incurring minimal costs!

The most common technology implementations involved warehouse software. The most common type of process program were continuous improvement programs.
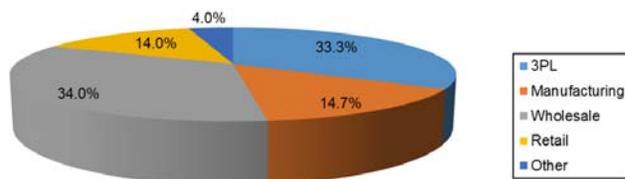
For both technology implementations and process programs, the relative results were associated with warehouse complexity. The more complex the warehouse (as measured by high rates of each or case picking or in terms of the volume of shipments), the more likely the project resulted in greater than 8 percent distribution cost-per-unit savings.

Successful projects tend to be successful in multiple dimensions. In the area of customer service, technology projects results were bimodal. More technology respondents fell at both the top and bottom of the performance improvement scale. Across a number of other benefit areas, both technology and process programs achieved substantial benefits. Looking at these results, it would be difficult to argue which was better.

Background

It is a truism that if you want to implement a technology solution to improve operations, you can't focus on just the technology. The project team needs to pay close attention to process and people issues as well. In short, people, process, and technology are all key elements.

So where should warehouse executives put their efforts to get the maximum payoff? Should they focus on technology (which will have people and process components); people issues – for example making sure warehouses are run by highly effective managers; or process issues, for example implementing continuous improvement methodologies.

**Business Sector of Respondents
(Sample Size = 150)**

To answer this question, ARC partnered with *DC Velocity* and *eft* (eyefortransport) to conduct a survey that asked this core question: "*Over the last five years, what change led to the greatest improvement in distribution costs per unit shipped?*"

In addition to being able to choose people, process and technology, respondents could also choose location (moving to a warehouse location that offered lower costs based on prevailing wages or tax advantages).

And shippers had a choice that 3PL respondents did not; they could choose outsourcing warehouse operations to a third party as the tactic that most improved their cost position.

The survey had 150 valid respondents. Data from system integrators, consultants, and software providers were excluded to avoid the potential for marketing-related biases. The chart on this page shows the sector data for the respondents.

In the results that follow, readers should keep in mind that the benefits reflect what respondents said was their *best* tactic for reducing costs over the past five years. The way this question is worded means that these are *atypical* results! These should not be considered the results the *typical* company would get from implementing technology or putting together a process change program. This analysis compares the *relative benefits* of very successful technology projects to very successful process programs.

Shippers Focus on Technology; 3PLs on Process

When it comes to improving the cost performance of the warehouse, shippers' best results have come from implementing technology, while 3PLs best results have come from process.
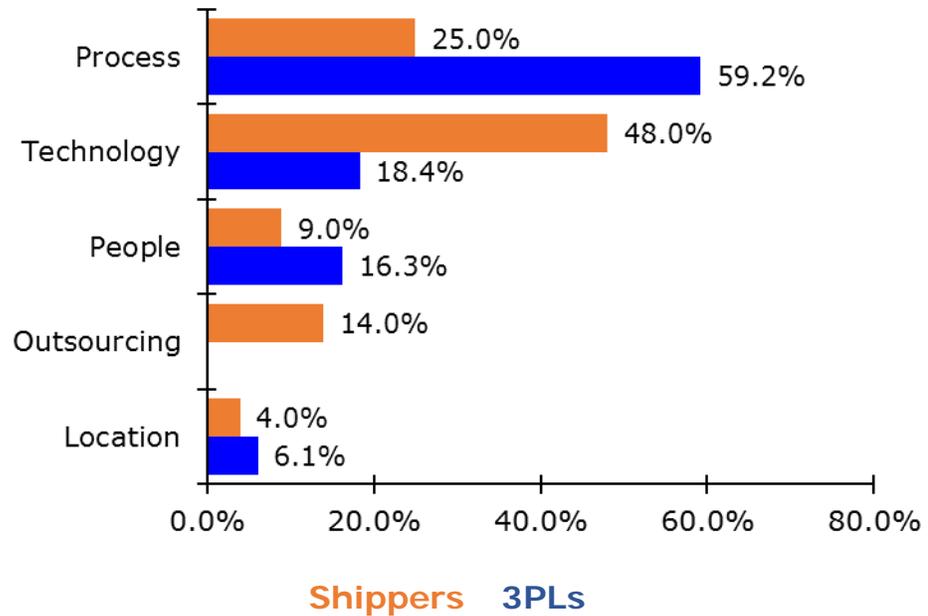
**Shippers   3PLs**

Shippers vs. 3PLs
"Over the last five years, what change led to the greatest improvement in distribution costs per unit shipped?"
(Shipper Sample Size = 100; 3PL Sample Size = 49)

One interesting finding is how few shippers, only 14 percent, report outsourcing warehousing had been their best tactic for reducing distribution costs. And yet the warehousing services market is massive; a recent ARC study on this market shows 27 suppliers with over $500 million in revenues. And the market is growing fast. Our current five-year forecast predicts growth of over 7 percent. So while many shippers choose to outsource, not many in our sample reported that this was their "best" option for reducing costs.

Another interesting finding is how frequently distributors outsource warehousing to 3PLs. In our survey, over half those who selected outsourcing as the tactic that had most reduced distribution costs were distributors. ARC would have thought that for a distributor, warehousing

would need to be a core competence, one over which it would want to maintain control.
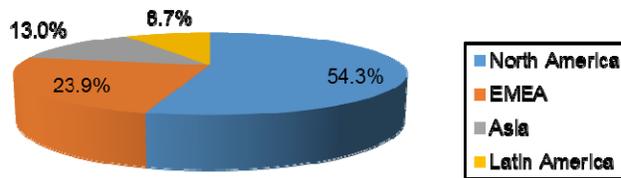
Regional Survey Demographics

In contrast, 3PLs report that they have had their best success by focusing on process.

There are good reasons why 3PLs would not view technology as their best option for lowering costs. 3PLs that run dedicated facilities often lease those warehouses for the length of a contract with a customer. Common lease lengths are three to four years. Some forms of material handling have historically had a payback period of four to five years.

Further, if a 3PL agrees to operate a warehouse that the shipper had built and staffed, the 3PL will inherit the technology already in place. So, for example, if the warehouse was already using a warehouse management system (WMS), implementing a WMS to lower costs would not be an option for the 3PL.

In short, in many instances, technology is just not as viable as an improvement strategy for 3PLs as for shippers.

Further, large 3PLs report that continuous improvement programs are often mentioned as something potential customers look for and almost always specify in the request for proposal (RFP). According to one top 3PL executive, these capabilities "are table stakes. You have to be able to show you possess a continuous improvement program to be in the game."

When it comes to continuous improvement, 3PLs seek to prove to potential customers that, more than a just a toolset, they have a continuous improvement <u>culture</u> in place.

Technology vs. Process Programs: Which Offers Greater Benefits?

So, if your goal is to reduce distribution costs, which types of projects work best: people, process, technology, location, or outsourcing?

Unfortunately, our subsamples were not big enough to answer this to our satisfaction: we received 17 responses for people-related projects, 14 responses for outsourcing-related projects, and 7 responses for location-related projects. However, while not definitive, respondents who reported "*people*" or "*location*" reported very good results. When it came to *people*, the activity most reported involved swapping out a poorly performing manager.

Distribution Cost Reductions

Both process programs and technology implementations achieved strong results.
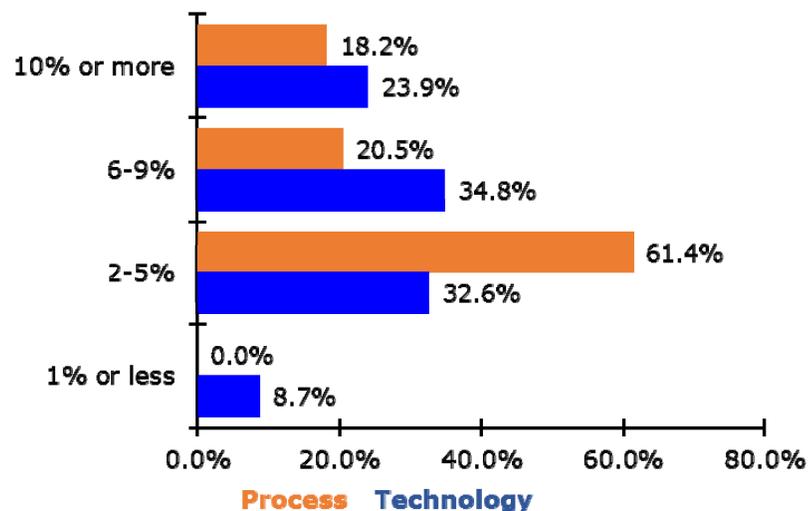

How much have your distribution costs per unit shipped decrease based upon the implementation of this technology or process project?
Sample Size (Process = 44; Technology = 46)

ARC asked the question, "How much have your distribution costs per unit shipped decreased based upon the implementation of this technology or process project? Please answer for the first full year after the shakeout period was completed."

On this measure, the answers were mixed. Technology projects were more likely to be at the top and bottom of the scale. For both technology implementations and process programs, better results were associated with warehouse complexity. The more complex the warehouse, as measured by high percentages of broken case or full case picking, the more likely it was that the project resulted in distribution cost-per-unit savings of greater than 8 percent.
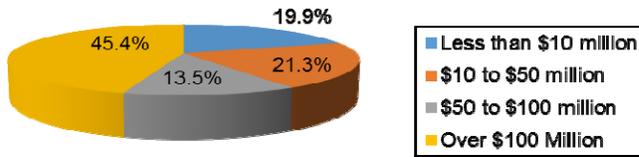
Survey Demographics by Value of Goods Shipped Out of the Warehouse

And the more complex the warehouse as measured by annual shipments of over $100 million worth of goods out of a warehouse, the more likely respondents were to report driving distribution costs-per-unit down by over 8 percent. For process respondents, half of those with greater than 8 percent in cost savings were in warehouses shipping more than $100 million per year. For technology respondents, close to 60 percent of those that got excellent results – cost savings of over 8 percent - were shipping more than $100 million per year.

When it came to technology projects, software projects were more common than material handling or other types of projects. Voice recognition and labor management system (LMS) projects tended to reduce costs to a greater extent than warehouse management systems (WMS). On the other hand, a WMS solution should be viewed as the platform on which these other software solutions build. Without the WMS in place, it is much more difficult to implement voice and LMS, and more difficult to get stellar results from those implementations.

When it came to process programs, continuous improvement projects were most common, representing 67 percent of all the process programs.

Customer Service

If cost savings come at the expense of service, one can question whether it was truly a successful project.
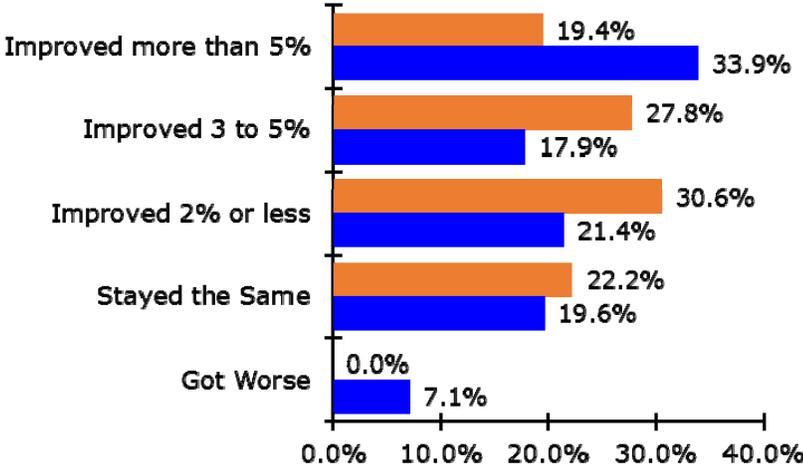
Projects Effect on On-Time Shipping

That was rarely the case; projects that improved companies' cost position, usually improved their on-time shipping performance. We defined on-time shipping as the percentage of orders shipped at the planned time (with "shipped" meaning off the dock and in transit).

Technology projects performed both better and worse that process projects. More technology respondents were at the very top of service improvement – over 5 percent – and at the bottom – actually reporting on-time shipping got worse. No process program respondent reported that service deteriorated as a result of the project. Based on improvements in on-time shipping, it is not surprising that high percentages of both technology and process respondents reported better performance on the perfect order metric – 75 percent and 66 percent respectively. Similarly, 82 percent of process respondents and 64 percent of technology respondents reported improvements in order cycle time.

Another measure of customer service is lost sales created by SKUs being stocked out in the warehouse. 40 percent of technology respondents and 44 percent of process respondents reported that their performance on this metric improved as a result of the project.

Other Benefits

Successful projects tend to be successful on multiple dimensions.

Respondents by Category Reporting things	Technology	Process

"Got Better" as a Result of the Project		
Ability to implement other technologies in the future	84.6%	52.9%
Ability to deal with surges in demand	74.5%	75.5%
Ability to improve end to end supply chain processes	74.5%	73.6%
Ability to Deal with changes in Order Profiles	62.0%	63.0%
Customer Relationships	60.4%	59.6%
Average Warehouse Capacity Used	58.9%	52.8%
Executive time devoted to overseeing warehousing	34.0%	53.1%
Annual Workforce Turnover	33.3%	36.2%
OSHA Incident Rate	30.6%	40.0%
Supplier Relationships	22.4%	40.0%

An area in which *technology* substantially outperformed *process* was the ability to implement other technologies in the future.

Process outperformed *technology* when it came to reducing executive time devoted to overseeing warehousing and supplier relationships.

Payback, Startup Problems, and Continuous Improvement

A payback period is a classic way to measure the success of a project. A payback period measures the length of time required for an investment to recover its initial outlay in terms of savings.

Payback Period

In this area, *process* clearly beats *technology*. In process programs, over 20 percent of respondents reported being able to launch a program while incurring minimal costs!

Payback Period	Technology	Process
Metric is not applicable because no costs/ minimal costs were incurred	0.0%	22.6%
Less than one year	39.5%	48.4%
1 to 3 years	39.5%	19.4%
3 to 5 years	13.2%	9.7%
Over 5 Years	7.9%	0.0%
	100.0%	100.0%

Of course, payback would logically be related to how a warehouse was performing before the technology implementation or process program began. If a warehouse is significantly underperforming, its ability to make dramatic improvements is much greater.

Process respondents were more likely to say their warehouses were "significantly underperforming" before the project began; 20 percent of process respondents replied that way; only 11 percent of technology respondents did. In this sense, for a portion of process respondents, the payback reported was easier to achieve.

Startup Issues

ARC also asked respondents whether they experienced "significant issues" associated with the project or program.

	Technology		Process Programs
	Software	**Equipment**	
Yes	60.7%	26.9%	56.0%
No	39.3%	73.1%	44.0%
	100.0%	100.0%	100.0%

Were there significant issues associated with the changes to processes or the implementation of technology?

Software projects had more startup issues associated with them than process projects. Technology projects based on equipment implementations had the fewest significant issues.

Cost Savings Sustainability

Another way to measure the success of a project is to ask whether the technology or process program drove distribution cost reductions on an ongoing basis or whether it was must a onetime saving. In this area, process projects appear to perform a little better than technology projects.

Nature of Cost Savings	Technology	Process
Yes, costs continue to decrease year after year as a result of this change	50.0%	54.3%
No, but costs have increased at less than the rate of inflation	41.3%	32.6%

No, it was a one time savings	8.7%	13.0%
	100.0%	100.0%

These results are somewhat surprising because continuous improvement projects are the most common type of process project and the whole philosophy of OpX (operational excellence) is to drive better results on an ongoing basis.

However, OpX depends on defining a base line performance and data are needed for that. If a company does not have good software, the hardest part of a kaizen event will often be establishing the baseline. In this sense, OpX and warehouse software are complementary approaches.

Recommendations

Respondents were asked, "What factors contributed to the lower costs and/or better service achieved by this project?" They were given a number of choices about what contributed to the project's success. When it came to technology, two factors were cited as most important. Firstly, the company changed their processes to support the technology. Secondly, they put training and culture change programs in place to support the implementation.

When it came to continuous improvement projects, the most important contributor to a successful kaizen event was already having a continuous improvement culture in place. Companies that are proud of their continuous improvement capabilities tend to talk about embedding OpX into their culture.

Certain metrics indicate that a company truly "lives" lean:

- How many employee-led kaizen events took place at the warehouse in question? Were those bottom-up or top-down events?

- How many value stream mapping engagements did the company have in which engagements reach beyond the warehouse to broader supply chain processes?

- Does the company run kaizen events outside of manufacturing and supply chain management, such as in its internal back office or sales or customer service functions? This is a good indicator of how deeply embedded Lean is into the culture as a whole.

- What hard dollar savings were associated with these continuous improvement events? Were the soft dollar savings? The productivity improvements? How were these benefits measured and did the customer sign off on them?

Acronym Reference: For a complete list of industry acronyms, please refer to www.arcweb.com/research/pages/industry-terms-and-abbreviations.aspx.

3PL	Third Party Logistics	**OSHA**	Occupational Safety and Health Administration
EMEA	Europe, Middle East, Africa		
IT	Information Technology	**RFP**	Request for Proposal
LMS	Labor Management System	**ROI**	Return on Investment
OpX	Operational Excellence	**WMS**	Warehouse Management System