



**Logistics &
Electronics**

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Logistics Insight:

How the Electronics Industry Can Flourish in a Down Economy with Outsourced Variable Cost Platforms

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INTRODUCTION

Like most industries, electronics is being severely impacted by the current economic downturn. According to the Consumer Electronics Association, shipment revenues are expected to be flat in 2009, decreasing .06 percent to \$171 billion. Considering the 5.4 percent increase from 2007 (\$163 billion) to 2008 (\$172 billion), this is a significant drop.

On the manufacturing front, the U.S. government cites that industrial production of home electronics fell 1.9 percent in February 2009. Overall, manufacturing output decreased .7 percent in February, down 13.1 percent from last year.

While it is standard procedure, even in normal economic conditions, for manufacturers both large and small to curtail operational expense, there is an even greater need in an extremely volatile economy. Because of current sporadic market conditions, aggressive strategies should be executed to cut costs and increase cash flow.

In a challenging market, all of a manufacturer's focus should be on improving core capabilities including research & development, managing sales channels and maximizing customer loyalty.

Dedicating resources beyond core competencies can distract a manufacturer from addressing their most critical operational issues. The pressing need is to identify those operations that should be

managed internally, and which can be shifted outside the organization.

Through an effective outsourcing relationship with a well-matched third-party logistics (3PL) provider, a manufacturer can focus investments on what customers value most, while considerably reducing capital expenditure (CAPEX) in areas where a capable partnership can be formed.

“Because of current sporadic market conditions, aggressive strategies should be executed to cut costs and increase cash flow.”

As a result, costs that were once fixed can be “variabilized,” including real estate, material handling equipment and information technology systems. In addition, the expense of workforce headcount and the associated overhead can be dramatically decreased without impacting flexibility.

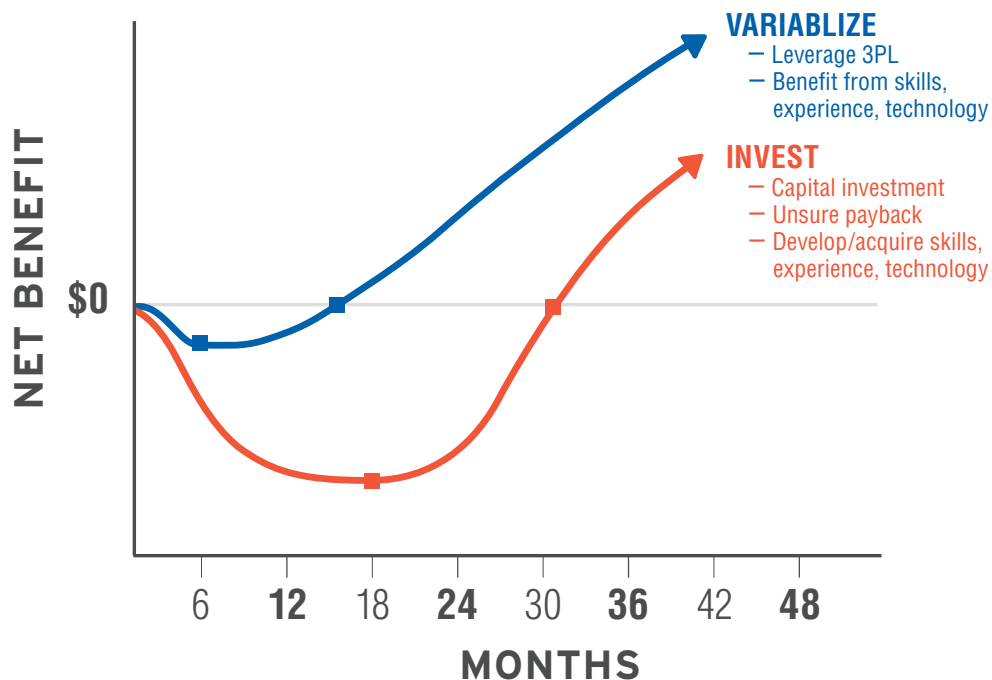
This paper will explain what an electronics manufacturer should expect from a sophisticated 3PL operation and the corresponding benefits. It will also detail the additional service offerings that can be incredibly valuable to an electronics manufacturer, beyond inbound and outbound logistics.

ANATOMY OF VARIABLIZING

Long implementation cycles and an extensive timeframe to achieve ROI are not optimal during an erratic economic climate. Skilled supply chain leaders should opt for a “buy over build” strategy to shift the burden of infrastructure investment, and maximize the benefit from the resources offered by a 3PL. A 3PL should have better capabilities in facility, equipment, workforce and technology that can be leveraged by an OEM almost immediately, to preserve CAPEX.

The illustration below shows two executions of the same project. One is variablized to leverage a 3PL, along with its skills, experience and resources. The other depicts an investment strategy conducted in-house. The “invest” project requires more time to recoup costs and become cash flow positive. The “variablize” approach demonstrates how a 3PL can deliver payback on the project dramatically sooner to benefit the business.

Two Views of Supply Chain



SOURCE: CHAINNOVATIONS

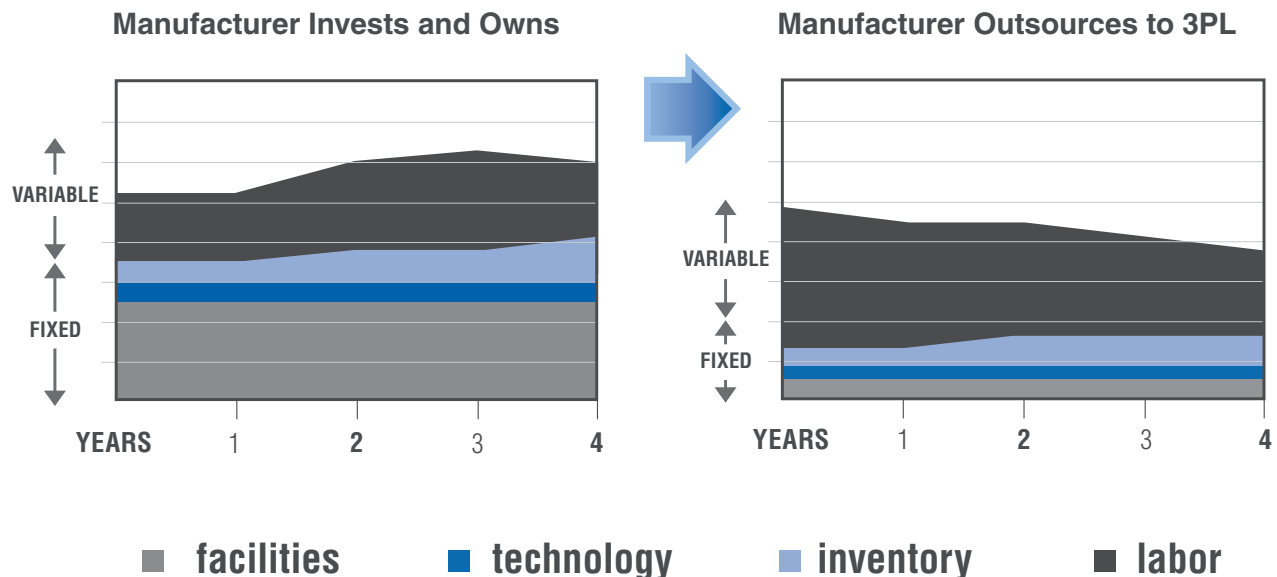
This is the essence of why a 3PL partnership makes sense. The benefit is gained without a large investment and cash flow is preserved, which is especially crucial in a tight economy.

VALUE OF A THIRD PARTY PARTNER

An adept 3PL that specializes in electronics should be expected to offer a full “menu” of services enabling an OEM to pick and choose exactly what will best complement their existing operations. The 3PL will also provide access to a skilled, readily available workforce without costly downtime. The key is to pay only for what is needed, when it is needed.

This illustration details how a 3PL combines flexible headcount, facilities and equipment, as well as technology, to diminish a manufacturer’s supply chain management (SCM) investment. This allows OEMs to maximize investments on a variable, versus fixed cost basis.

Using Third Party Logistics Companies to Variabilize Cost



SOURCE: CHAINNOVATIONS

EFFICIENT LABOR WITH EXPERT MANAGEMENT

Hiring, training, salaries and benefits are costly at every level of the organizational hierarchy. These funds are best reserved for core business objectives. The highly specialized workforce required for sophisticated SCM is normally not cost effective for manufacturers to employ fulltime.

A well-trained supply chain workforce, along with experienced managers and executives, possess specific skills only required periodically, making them cost prohibitive in most instances for manufacturers. If and when demand and volume fluctuate, an idle or under-producing labor pool leads to expensive downtime and wasted money.

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Efficient Labor with Expert Management >> Continued

A 3PL on the other hand, provides the right balance of headcount, so labor is being used and paid for only when necessary. Plus, the experienced management oversight can provide critical observations and direction to reduce costs and streamline overall workforce operations.

The role of the 3PL and headcount requirements will vary according to the size of the manufacturer. Smaller companies can benefit from each service a 3PL offers, such as order fulfillment, inventory management, channel distribution, returns, planning, transportation, etc. Large companies that already have some existing supply chain infrastructure can “cherry pick” services based on specific need, including coverage for surges in volume or demand. Mid-market providers will use a combination of both, as they continue to grow.

Helping manage excess volume and demand spikes is an area where a 3PL can be incredibly adept. This can include supplementing full time employees with part time workers to avoid overtime expenses.

These upticks in labor requirements can stem from seasonal surges (summer products, Black Friday, and Christmas, etc.), new product introductions, marketing initiatives, product recalls, and unanticipated demand from a planned or unplanned event.

When these situations occur, an OEM supply chain can be overwhelmed. A 3PL can meet this excess without compromising a manufacturer’s contractual obligations to its distribution channels or customers, while avoiding missed sales opportunities.

SHARING EQUIPMENT & FACILITIES

Because the needs of an OEM tend to change regularly, depending upon product offerings and market conditions, it is not optimal to build, lease or operate corporate-owned facilities. Besides real estate, this requires major investments in software and materials handling equipment (conveyer, sortation, direct pick, hand-held systems). It also includes costs for relocation or training of new employees, as well as warehousing and distribution facilities.

This is another instance of using a 3PL to variablize costs that have traditionally been fixed. The 3PL assumes these expensive obligations, and the client receives the benefit of being operational in a shorter timeframe to achieve ROI, with minimized CAPEX.

A 3PL also offers the tremendous advantage of accelerated market entry, if they already have a presence where an OEM wishes to expand. This can result in lower costs for transportation and improves customer service through closer proximity.

Another option is utilizing a 3PL with strategically positioned operations. The right 3PL will already

have, or establish locations, based on customer needs. A centralized location can be quite attractive for OEMs with longer customer lead times, as they offer more scale and greater infrastructure that can be an ideal match for large companies. Shorter product lead times may require sites much closer to the customer, but with potentially lower levels of automation.

In the event that an OEM wishes to move, but their logistics partner has no presence in that market, a 3PL can relocate to new geography and establish operations to quickly meet their needs. This is entirely different from an OEM expanding on its own, because the 3PL is far more proficient at the transition process.

While it still takes a certain amount of time to be up and running, it is only a fraction of what an OEM would typically require. Leveraging the resources of the 3PL can also provide the OEM with capacity even when staff draw-downs become a business necessity.

THE POWER OF TECHNOLOGY SYSTEMS

Adopting comprehensive SCM technology systems commands millions of dollars in investment and an extensive timeframe for implementation. Even on an aggressive schedule, technology systems such as order management, inventory management, warehouse management and transportation management require extensive research to obtain, as well as at least nine months for implementation and go-live, plus another six to twelve months for transition, post implementation and training.

Attempting to do this independently would take a manufacturer multiple years to achieve positive ROI. A 3PL, by contrast, will bring a technology “toolbox” to the relationship with the capacity to transition supply chain operations from an OEM in a much shorter period.

The benefits should be evidenced almost immediately, without the wait and need to incur

tremendous capital expense. By streamlining this implementation and transition process, months can be slashed from what it would typically take to be fully operational. What’s more, the recurring cost of upkeep and maintenance of these systems is absorbed by the 3PL.

The capability and flexibility to ramp operations quickly is extremely beneficial, and can only be realized through a strong 3PL partner. Besides the advantages of accelerated implementation and quicker ROI, however, a 3PL offers the expertise that can maximize these systems to the fullest.

This is critical to effectively interpret the voluminous data these systems generate. It equates to a tremendous value add that not every 3PL can provide. In most cases, the low bidder will be unable to execute this function.

“Leverageable” 3PL technology can include:

FORECASTING

While an OEM might have its own forecasts, working with a 3PL can better refine this data, and introduce new information based on other analysis and deep understanding of the industry.

A good 3PL will be willing to collaborate on forecasts and engage in dialogue with its clients to temper the projections, if necessary, to ensure a successful outcome. Therefore, it is not advisable to force a 3PL to comply with internal forecasts without soliciting extensive feedback.

A well-matched 3PL will understand the OEMs market sector intimately and make

recommendations based on institutional knowledge and comparative analysis. For example, if a company indicates that it does not want more than a 20 percent variance on a project, a 3PL could reveal that this is far too conservative and there is potential to miss orders and thus hurt sales.

The 3PL can demonstrate through similar past experience that it is reasonable to expect 50-60 percent growth per month, and the manufacturer should be prepared to respond accordingly. This insight would most likely be missed with an internal operation.

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“Leverageable” 3PL Technology Can Include: >> Continued

VISIBILITY

Accurate inventory visibility helps to maximize assets and control costs. The significance of this function permeates the entire supply chain. It takes

a tremendous amount of expertise to manage the myriad of complexities involved with visibility to manage orders, inventory and distribution.

Visibility is especially important in two capacities:

- **Customer Support:** If a customer contacts a manufacturer to inquire about an order, accurate visibility is essential to deliver the desired information. Without reliable visibility, expectations can neither be set, nor met, and customer relationships can be damaged as a result.
- **Management:** Visibility allows productivity to be analyzed and fine-tuned to ensure that service and operational standards are being met.

As a labor management tool, visibility can pinpoint exactly where operations are falling short. It can also provide an accurate look at inventory levels before committing to order shipment, and determine if optimal shipping rates are being achieved.

A sound 3PL will also provide integrated systems that offer detailed visibility. It is critical to have real-time information regarding asset levels and their

location to maximize resources. An expansive network such as this is extremely cost prohibitive for many OEMs.

DEEP SERIALIZATION

Serialization offers a unique and specialized form of visibility that only the most skilled 3PL organizations provide. It can be used to manage complex electronics devices, including medical equipment, communications equipment, avionics, etc. Specifically, serialization offers the capability to track items to the individual level. Typical ERP and management systems lack this ability.

Without serialization, it may be understood that a product has been shipped in general terms, but the exact unit cannot be tracked. This level of detail is not only important for SCM, but can be necessary for regulatory compliance, especially in terms of medical equipment.

“Deep serialization” takes the concept considerably further by aligning customer-specific manufacturer specifications and instructions on both the unit and component level. If this level of granularity is necessary, a 3PL provider must have the capacity to manage this data and execute against inventory accordingly on behalf of the OEM.

Deep serialization delivers actionable information essential to customer/OEM and supplier/OEM relationships that a 3PL must be able to address. It can be incredibly significant in the event that the OEM needs to conduct post-sale activity on a device and contact a customer for corrective action.

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“Leverageable” 3PL Technology Can Include: Deep Serialization >> Continued

The information is also critical in the relationship between the supplier and the OEM in terms of specific parts. If there is a sub component failure identified after the manufacturing process is complete, deep serialization can inform the 3PL that this part must be replaced on a proactive basis to avoid compromises in quality.

In addition, deep serialization is also valuable in the returns process. Because the 3PL will have a repository of information for each product and component, it can apply this knowledge when a customer returns a device. It can reveal if the device

can be quickly repaired or more extensive action is needed.

If the same product is returned with the exact same problem reported, on the surface it may seem logical to apply the same standards to facilitate repair. However, deep serialization provides instructions to the 3PL from the OEM/supplier relationship that any product manufactured before a certain date should have its software reflashed, after that date, it should be returned. This allows for the test & repair process to be dramatically streamlined, preserving labor and material expense.

SPECIALIZED SERVICES

Particularly for electronics OEMs, a 3PL partner should be expected to offer a higher level of expertise to manage complex product offerings. These services should go beyond the baseline benefits of variabilizing fixed cost and reducing CAPEX.

If well managed and executed, the third-party can deliver sophisticated value adds to help manufacturers increase sales, improve customer relationships, decrease costs and address one of the most pressing concerns of the modern era—environmental responsibility.

KITTING & PACKAGING

Electronics OEMs typically manufacture and package devices at overseas facilities, but this results in higher transportation costs and doesn't provide opportunities for flexible customized packaging, or last minute software upgrades.

By working with a 3PL with specialized kitting & packaging services, devices can be shipped in bulk and packaged at the point of distribution. This allows more product to be shipped per pallet from manufacturing facilities, which reduces transportation costs. It also facilitates customized packaging geared toward specific retailers and special promotions. This helps improve sales, and thereby strengthens relationships with retailers.

As an example of this strategy, a global provider of GPS systems utilized a 3PL to bulk ship more than 900 units per pallet, as opposed to the previous process, which only allowed for 200 packaged devices per pallet. This reduced the cube of the shipment, decreased the associated transportation spend, and allowed more units to be shipped simultaneously. Once the merchandise arrived at the distribution center, it was specially packaged for a retailer to support a special promotion. This level of flexibility cannot typically be matched by internal operations.

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Specialized Services: Kitting & Packaging >> Continued

“Postponement” strategy

Another level to innovative kitting & packaging services is a “postponement” strategy. This concept involves devices being shipped from OEMs overseas in “vanilla” condition, so they can be customized at the last minute for specific clients and end-users.

For instance, a cell phone manufacturer can work with a 3PL to order a large shipment of 100,000 phones, without fully understanding the specific quantities that will ultimately be ordered by individual carriers. A postponement strategy eliminates the guesswork because the phones can be packaged as the orders are made. This improves inventory flexibility, and prevents surplus or shortages for particular carriers.

Otherwise, an OEM might be left with too many phones that were packaged for a specific carrier who no longer needs them. The phones must then be dekkitted and repackaged, which can be labor intensive and expensive.

REVERSE LOGISTICS

For warranty and non-warranty fulfillment, advanced reverse logistics services, including returns & triage and testing & repair, are powerful value adds that a qualified 3PL should offer. This can dramatically

reduce the cycle time to return a unit to the customer, or if necessary to the OEM (typically China) for more extensive work.

- **Returns & Triage:** Triage services are an important component of the reverse logistics process. Some organizations unwisely begin repairing devices the moment they are returned regardless of condition. A 3PL with triage services will closely examine the unit to determine if repair is required.

This process identifies not only if repairs are possible, but also if they can be managed by the 3PL, or if the unit should be shipped to the OEM.

If it is diagnosed that a major overhaul, including disassembly and board repair is needed and it is likely that the unit will never be marketable, it can be deemed “beyond economic repair” and designated for disposal or recycling. The process of specialized triage saves an extensive amount of time and money.

- **Testing & Repair:** Triage units deemed appropriate for the 3PL can be remanufactured onsite with board and component level repair, and then tested to ensure they can be placed back in the supply chain. Repairs can also include cosmetic maintenance, or complete refurbishment.

An advanced 3PL will be able to perform these functions to exacting OEM standards and practices. “Level one,” repairs such as software reflashes or screen polishing for an electronics unit are simple to perform and can be justified because of a low average cost of repair.

These services allow devices to be rapidly returned to a current customer or sold through secondary market opportunities, which can generate additional revenue. Ultimately, testing & repair helps to minimize costs and maximize asset recovery on a per device basis. When factored exponentially, the impact of these specialized services is significant.

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Specialized Services >> Continued

MATERIAL REQUIREMENTS PLANNING (MRP)

Material requirements planning (MRP) is a powerful tool for managing and procuring inventory for kitting components, packaging supplies and repair parts to keep production flowing. It automates acquisition of materials resulting in accelerated data processing and reduced opportunities for human error. A quality 3PL will have MRP systems in place to perform this important function on behalf of its customer base.

The 3PL can upload bill of material (BOM) information into the system for all items created in the manufacturing process. The item master for the raw materials includes information on vendors, alternate vendors, minimum order quantities, case pack quantities and lead times. The system can even allow for various aspects of lead times to be entered, such as internal processing time, time for the manufacturer to produce order, transit time, inbound receiving and inspection time.

Through careful analysis a buyer/planner can forecast (either from internal data or customer

forecast) material usage and consolidate demand for common part numbers, then compare to current quantities on hand and order quantities, along with lead-time information. Action messages can then be generated to direct the planner to expedite, cancel or place new orders. This information can be shared with the production department, or the customer, if material shortages are detected that can impact production.

The MRP utilized by a 3PL can help reduce expense for the manufacturers, because they can potentially have more buying power, particularly when compared to smaller organizations. The utilization of the MRP system also increases the inventory turns and reduces total on hand inventory levels. The 3PL can also offer greater flexibility with MRP because of the diversity, volume of SKUs, and amount of material they procure for multiple clients in the same industry.

GOING GREEN

Environmental responsibility is a global priority. Electronics manufacturers, in particular, face a greater challenge because these devices sometimes contain a host of toxic materials and components, which are strictly prohibited from conventional disposal.

While testing & repair operations help keep devices operable for an extended timeframe to maximize the value, when they finally cease functioning, the material must be properly managed. With increased regulations from governments all over the world regarding handling of electronics materials and components, it behooves manufacturers to be environmentally conscious. Preparing green operations now, will greatly benefit future OEM operations.

This leads to a focus on recycling, which is the most effective and responsible method to gain value from

discarded materials. A quality 3PL partner will have mechanisms and processes in place to manage end of life electronics products.

In addition, they will have the expertise to offer more comprehensive knowledge of the product and its materials. This will allow the 3PL to sort the devices to the component level and harvest parts such as circuit boards, plastics, glass and heavy metals for either spares or recycling. Outright disposal is virtually eliminated.

With the material sorted, the 3PL can determine the viability of the material and whether or not it can be repurposed for other uses. Further, they will have relationships in place with recycling specialists that can transfer the material in bulk to processing facilities, which can maximize its usefulness. This can also lead to revenue generation through sales of the recycled material to various markets.

CHOOSING A 3PL

First and foremost a 3PL must be transparent to the end-user. It must simply be perceived as an extension of the client, without a distinction between quality and service. Accordingly, there must be an extraordinary amount of trust and commitment involved in the relationship.

Finding the right 3PL partner dictates careful analysis of the specific requirements of an OEM, factoring in market niche and customer base. The electronics supply chain requires a highly specialized focus that makes selecting a 3PL all the more challenging.

To make the right decision for a long-term fruitful relationship, it is advisable to conduct a thorough selection process, concentrating on the following qualities:

1. **Electronics OEMs should look for a provider that offers a variety of sophisticated services, including:**
 - ***Test & Repair*** (diagnostics, triage, cosmetic/component replacement and repair, reconfiguration and programming)
 - ***Kitting & Packaging*** (creative packaging, last minute reflash, component sourcing, real-time visibility)
 - ***Asset Recovery*** (recycling, green programs)
 - ***Value-Added Service*** (planning and management solutions, quality management, customer care, procurement services)
2. **Flexible operations adaptable to evolving market conditions**
3. **Solid, tenured executive and management team with minimal workforce turnover**
4. **Collaborative partner willing to engage in extensive dialogue and exert critical analysis to achieve favorable results**
5. **Client-focused attitude that breeds continuous improvement**
6. **Stable organizational and financial structure**
7. **Bandwidth and scalability to support current and future operations**
8. **Well-known, verifiable references**

Importance of the “THREE SUPPLY CHAINS”

While the physical logistics operation is the most forward-facing aspect of SCM, there are two additional supply chains that comprise a comprehensive solution. A solid 3PL partner will have mastered these three supply chains that lead its client from quote to cash, to ensure a profitable operation.

Each component serves an essential function and when operated by a 3PL, becomes an extension of its client’s organization. Specifically, the three supply chains include:

- The “physical” supply chain emphasizes the logistics aspect of order processing and delivery. This is the primary area that a client relies upon a 3PL to maintain high service and quality levels.
- The “informational” supply chain, which includes the exchange of information between client systems and its 3PL. This is critical to track events associated with the inventory, so that a client can maintain control and oversight.
- The “financial” supply chain ensures that a delivery has been made, so it can be invoiced, and the payment collected. Apart from billing, it is also important from a financial planning standpoint to account for the number of transactions a 3PL processes in order to match expense with revenue.

These supply chains are distinct, but equally important to success. The technology platform serves as the event manager between the three supply chains and sends messages back and forth on the status of each order as it progresses. An accomplished 3PL will be able to efficiently maintain each of them to reduce the burden on its clients.

MOVING FORWARD

It is well established that current economic conditions mandate cash preservation and reduced CAPEX top to bottom. If these harsh realities are weighing heavy on the leadership of an organization, it is imperative to look for non-core areas to create efficiencies.

For many manufacturers, this points directly to SCM. Aligning with a quality 3PL partner can provide efficient access to infrastructure, technology and workforce to maximize spend, without compromising services levels. With this burden lifted, an OEM can

free itself to concentrate on core competencies while improving product offerings, refining customer service and cultivating new business.

Forging ahead and finding new innovative solutions can be the difference between flourishing and failure in challenging times. This paper has outlined the services and benefits a well-versed 3PL can offer, as well as what to look for when considering a potential partner. If this resonates, and a new direction is desired, it is time to seek a well-matched 3PL relationship.

About ATC Logistics & Electronics

ATC Logistics & Electronics (ATCLE), is a premier provider of third party logistics (3PL) and supply chain services. The company specializes in forward logistics, reverse logistics, asset recovery, test & repair, kitting & packaging and value-added services for high-velocity, high-tech devices, in addition to other equipment and components. Industry focus includes wireless, broadband, electronics, medical, industrial and automotive. ATCLE's knowledge, expertise, IT capabilities and 99.5 percent service and quality levels enable its customers to streamline supply chain efficiency and enhance growth and profit. With a customer roster including AT&T, GM, LG, Pantech and TomTom, ATCLE raises the standard for quality, service and performance.

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About Chainnovations

Chainnovations' goal is to deliver a significant competitive advantage through effective Supply Chain Management. Our team of nimble, resourceful and relentless professionals helps implement practical strategies with constructive impatience. Our associates possess top industry and tier-1 consulting experience in Supply Chain Transformation for many leading high-tech and service-oriented clients.

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