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#### Introduction

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## INTEGRATING THE SUPPLY CHAIN FLOWS

### FOR BUSINESS EFFECTIVENESS

#### ZILLUR RAHMAN

Indian Institute of Technology Roorkee EMAIL: yusuffdm@iitr.ernet.in

#### **MN QURESHI**

University of Baroda EMAIL:mnqureshi@rediffmail.com

### **ABSTRACT**

Every transaction, toward physical exchange of goods involves flows of information, material, money, manpower and capital equipment, wherein flows involving information, material and money are vital to maneuver. The exchange of goods necessitates physical flow, information flow and financial flow imbibing inbound logistics and outbound logistics to deliver right material, at right place in right time with right information. The financial flow involves the transaction made either in soft or hard format calls for documents for purchase, sales, shipping, inventory, billing etc. The outcome of every transaction involves exchange of funds. The real hidden potential among the various flows has not been tapped for many decades as the various flows remained unsynchronized. An attempt made to optimize flow singly resulted in vain hence for reaping maximum benefits, the combination of the three flows has to be integrated and optimized.

This paper studies the conditions that have led the industry to acknowledge the relationship among these three flows, how their integration will improve efficiency all along the value chain, and the key challenges faced by the decision makers for achieving that integration. Finally, a case study of a hypothetical company Reliablecure, an Indian medical supplies company, has been illustrated for its successful ability to get the highly perishable surgical wound adhesives from its' manufacturing facility in Austria to surgeons across the US, just by seamless integration across the value chain.

### I. INTRODUCTION

The era of the traditional business transaction is on the verge of paradigm shift with the advancement of revolutionized Information and Communication Technology (ICT). The Supply chain process so evolved emphasized on the role to be played by each player of the supply chain to make collaborative effort for the business success. As per Towill

(1997) 'all players must think and act as one' so that the supply chain is seamless with both information and material flows fully integrated. The research on supply chain process revealed many important flows responsible for the effective business transaction. The various flows involved in the supply chain process are depicted in the Figure 1.



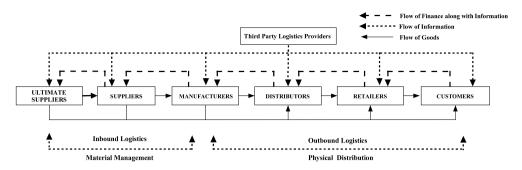


Figure 1 The Supply chain Process

The physical flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The financial flow consists of credit terms, payment schedules, and consignment and title ownership arrangements. The information flow involves transmitting orders and updating the status of delivery. The physical supply chain and the financial supply chain existed virtually in all forms of commerce (Thompson, 1998). With the advent of Information and Communication Technology (ICT) the third supply chain i.e. Information Supply chain has taken place in traditional supply chain. Every transaction, meant for physical exchange of goods further involves flows of man power and capital equipment, thus it involves flows of information, material, money, manpower and capital equipment, wherein flows involving information, material and money are vital to maneuver. By sharing this data "upstream" (with a company's suppliers) and "downstream" (with a company's clients), SCM applications have the potential to improve the time-tomarket of products, reduce costs, and allow all parties in the supply chain to better manage current resources and plan for future needs. According to Forrester (1958), management's success depends upon these flows and the system that interlocks these flows in order to amplify one another and

its subsequent fluctuation which influences the strategic decision, policies towards organizational structure and investment choices leading to company's survival and its growth.

Companies today invest large amounts of capital and human resources attempting to eliminate every bit of inefficiency out of their physical supply chains. At the same time, they're investing millions on solutions to streamline their financial supply chain (for instance IBM has signed a two and half year, USD 29 million consulting contract to streamline Southern Company's financial, supply chain and work management operations Asia, 2006). IBM's investment is seeking ondemand data and information to strengthen physical flow to serve their customers, by improving operations, enabling proactive maintenance, and contributing to fewer and shorter outages). Both of these efforts have yielded significant benefits. Yet they fail to capture the full economic value and efficiency that could be achieved through closer collaboration between the physical and the financial supply chains which is evident from the industry success rate and industrial business growth. Many industries in India failed to synchronize their physical and financial supply chain and thus faced liquidity crunch leading them to reduce their offerings or succumbed to sick unit's

declaration. As per The Board for Industrial and Financial Reconstruction (BIFR) as of March 1995, and subsequent report in Business Line newspaper, there were more than 271,000 sick industrial units in India with outstanding bank credit of Rs. 137,390 million, of these 99 per cent companies belonged to the small- scale industry. These sick companies accounted for 6.7 per cent of the total bank credit and 13.3 per cent of the total bank advances to industry.

#### II. NEED OF THE HOUR

The management of the physical supply chain has evolved from an emphasis on the individual logistics functions like transportation and warehousing, to the integration of those functions within the organization, and now to planning and collaboration between trading partners (Taylor, 2003). Well run companies have streamlined their physical supply chain flow by implementing Material Requirement Planning (MRP) to effectively control their materials. Power of planning was further enhanced by focusing further using Manufacturing Resource Planning

Supplier's concern Reconciliat Receive Manage Resolving Payment Purchase Invoicing Discrepancy Inventory Receipt with A/R Order Seller Based EIPP Payer Based EIPP Paver's concern Reconciliat Send Receive Receive Resolving Make Purchase ion Invoice Payment with A/P Order

Figure 2 Traditional Supply Chain Process improvisation with Integration

(MRP-II) to take care of the various resources. The latest in the chain is ERP and SCM software which are being used to integrate to take care of the business as a whole. Over the past few years, most well run companies have focused on improving their physical supply chain efficiency (Carr, et al., 2004). In doing so, they have realized such benefits as shorter time to market, reduced production costs, lower inventory costs, and closer collaboration between trading partners (Boubekri, 2001). Well run companies also follow twelve rules for simplified material flow (Towill, 1999) for cost cutting and increasing competitiveness.

Similarly, leading organizations have been working to improve their financial supply chains in recent years. The traditional process of purchasing and receiving is being done in isolation hence cerates complexity in financial flow. The traditional buy or sell process if invoked through electronic invoice presentment and payment (EIPP) / Electronic Bill Presentment and Payment (EBPP) solutions will provide hassle free settlement between two parties. EIPP involves automating everything from how

the seller presents an invoice to how a customer pays the bill. The most obvious savings come in staff, paper and postage, but vendors say that as much as 85% of the benefits result from eliminating manual work such as negotiating billing disputes with customers and cutting refund checks(Computerworld). As per Gartner's research, the savings through EIPP could average \$5.7 million annually, or \$7.25 per invoice



(Computerworld). The traditional purchase and receipt operation is depicted in Figure 2 which is reinforced with the use of EIPP and EBPP to give seamless information flow. The financial supply chain has to be integrated by synchronizing different departments working for distinct functions like sales, marketing, purchase, development etc. The integration can provide useful linkage between cash inflows and outflows with high accuracy in the shortest possible time. The financial supply chain as whole or apart thereof can be strengthened by using the latest software, a more recently using EIPP to take care of the accounts receivables (AR), accounts payables (AP), and general ledger (GL). The financial supply chain is much broader as it incorporates not only the flow of financial information, but also financial products such as credit assessment. risk management, financing, payments, and servicing.

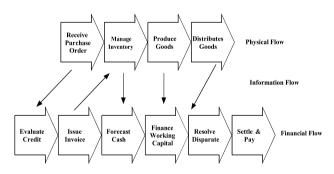


Figure 3 Financing activities with information that supports the physical movement of goods in supply chain Adopted from Fairchild(2005)

The Internet is one step in a long transformation, which dates back to the telegraph, and which we call the "information logistics" revolution. Figure 3 depicts the integration of information with physical flow and financial flow. According to Seetharaman, et al., (2004), exchanging information electronically replaces paper

and person and provides the benefits like a long-term decline in the cost and complexity of interactions between economic actors. The progression from telegraph to telephone and to Internet is largely the result of one of bandwidth and network convergence.

Logistics is the art and science of moving things from one place to another. The key variables involved in the physical logistics are time and cost. Optimizing physical logistics was impossible beyond a certain point before better information logistics were applied to the problem (Benko & McFarlan, 2003). Electronic data interchange (EDI) and now the Internet has allowed far more efficient information exchange between suppliers, manufacturers, distributors, and customers using industry-standard EDI messaging. Such close integration allows better support and re-engineering of business processes to achieve greater speed,

reliability, control, and cost savings. This improvement in information logistics has translated directly into better physical logistics (Ritchie & Brindley, 2000). The goal of successful supply chain management is to minimize mass and time. To do this effectively, one must be able to measure the costs associated with

not only the physical movement of the product and the associated information requirements, but also the costs associated with the inventory: financing, taking credit risks upon sale, supporting trade credit and the like. Because few companies have a clear idea of this "total" cost, they tend to target the more tangible elements of logistics costs, such as transportation

CB CE

and warehousing. As with every service, however, there is a point at which costs can no longer be reduced without affecting service quality (Ziethaml & Bitner, 2003). Meanwhile, while many believe that the reduction in inventory carrying costs over the last several years is due to great strides in reducing inventory levels, the facts show that a marked reduction in interest rates over the same time frame has driven the majority of the benefits, apart from the many other factors like the use of IT in supply chain and JIT. In short, cost reducers, or logistics companies seeking new sources of revenue, need a new, more tangible target. When one considers the total dollar value of goods shipped through third party providers, the value created by reducing the financing cost by even a few basis points is far greater than any cost savings possible from traditional transportation and warehousing targets (Rahman, 2003).

Three phenomena imbibing information shipment status, sharing on availability and longer trade terms pose greater threats as they drive the cost reduction opportunity, moreover none of these are likely to go away anytime soon, The failure of supply chain information owners to share and coordinate shipment status in order to avoid rigorous followup cost and product availability data with financiers, drives financing costs artificially higher; the third, the relentless pressure on suppliers in virtually every industry to accept longer and longer trade terms to enhance their customers' return on invested capital (ROIC) and return on assets (ROA) comes from shareholders pressure: when managing ROA, if you cannot increase the "R", reduce the "A". In short, own the inventory for the shortest time possible.

# III. SITUATION WARRANTING INTEGRATION

#### a. Lack of Information Sharing

Could owners of supply chain information, if that information were shared, influence the costs to finance inventory? Consider the components of an interest rate; In addition to the cost to fund, embedded in any financier's rate is the risk premium associated with credit and the costs to service (for instance A company with the highest credit rating, AAA, will pay less to raise funds under identical terms and conditions than a less creditworthy company with a lower rating, say BBB.) e.g. the costs to audit and inspect inventory. In effect, financiers seek out the same information that logistics providers require to provide service to their customers, and/or that customers gather directly, as financiers rely on asset tracking as a means to verify collateral levels and location to establish borrowing bases from which they extend credit. This alone provides a revenue opportunity in that real-time information on inventory levels and status has value to financiers because certainty of asset location and control of physical movement and possession results in a reduction in risk that can be reflected in the cost of credit. Put another way, the risk premium and servicing cost components of the interest rate are artificially high because financiers gather supply chain information independently and far less accurately than logistics providers, increasing risk and cost, resulting in an artificially higher rate. In short, reliable supply chain information is credit enhancing. Owners of this information have a great asset, but they fail to maximize its value.



#### **b. Poor Coordination**

At the same time, each supply chain participant typically arranges financing separately. Suppliers establish lines of credit with financial service providers to acquire equipment to produce their products, to provide financing to build inventory and to support the extension of trade credit. Manufacturers. distributors and value added re-sellers follow the same practice (see Figure 4). In so doing, each participant typically utilizes different financial service providers, each with its own terms and conditions, pricing hurdles, risk parameters. credit capacity and industry/product knowledge. Objective coordination (Shared objective of optimizing the supply chain efficiency in order to compete with similar

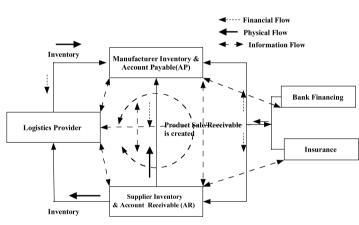


Figure 4 Current state of Supply Chain Flows

supply chain to increase competitiveness in the market) with information exchange and physical movement through the supply chain (Lummus, et al., 2001) to support the financing of inventory as it passes from one participant to the next is rare. As a result, process duplication occurs between suppliers utilizing a variety of different finance and logistics providers. In short, supply chain partners rarely talk about financing as part

of their vendor negotiations, and as a result all pay more.

#### c. Elongated payment terms

Countless suppliers are in effect financing their customers, as "net 30" becomes net 60 or worse. Most supplier discounts e.g. 2% 10 days/net 30 are either not taken or abused. Again, the Fortune 1000's relentless focus on ROA is the culprit; in effect, suppliers who do not want to lose an important account pay the price.

As a result, a gross inefficiency exists in most supply chains as higher cost of capital suppliers finance lower cost of capital manufacturers (Rafuse, 1996), assemblers, retailers or distributors. Almost regardless

of industry computer PCs, automotive and retail to name a few little guys financing the big guys, creating a significant revenue opportunity supply for chain information owners to share their data on product movement and, working in conjunction financiers, with manipulate the resulting

arbitrage opportunity while earning a slice of the financing revenue in return.

### VI. NEED FOR INTEGRATION

Although companies have made significant progress improving their physical, information and the financial supply chains individually, they have made comparatively little progress toward integrating the three.

The result: there's a powerful, largely untapped opportunity to dramatically improve supply chain efficiency and add economic value.

The extent of that opportunity is reflected in the inefficiencies that currently exist (Rainbird, 2004). For example, while procurement seller hubs automate the procurement process, they still require buyers to go offline to make the payment (refer Figure 2; in absence of e-payment option the payment is made offline). This increases the time-to-order-completion. transaction costs, and reconciliation activities (Svensson, 2003). Following the decision to buy an item, a customer might still need to call his banker to finance a purchase. This elongates the purchase execution cycle and the inventory hold time while delaying the receipt of payment for the seller. Product managers that do not consider the payment history of their customers may price products at a margin insufficient to recover the long payment cycle and the many hours of customer follow-up work by their AR staff.

These examples of real life problems occur at the interface between the physical, information and financial supply chains. Typically, such issues have been handled in a cumbersome, manual way. Or they fall through because they do not fit squarely into one supply chain, and thus are not owned by any single individual or department. These examples of uncoordinated physical and financial supply chain activities are a financial detriment to an organization (Lin, et al., 2005). Further, they impede the development of a mutually beneficial and financially solid relationship with trading partners.

Problems at the physical-financial supply chain interface affect other performance metrics as well, such as inventory turns, safety stock availability, manual processing costs, and dropped transactions because of inefficiencies. Granted, the lack of collaboration between the two supply chains is not solely responsible for poor performance in these areas. Yet it certainly is a major contributing factor—one that needs to be aggressively addressed.

#### V. STEPS IN INTEGRATION

Gaining visibility over the transactional flow among buyers, suppliers, logistics providers, intermediaries, and financial services providers can eliminate many of these costly inefficiencies (Walters, et al., 2002). Just as importantly, it can open the door to revenue-generation opportunities. Collaboration between the physical and financial supply chains is the key to fully realizing these cost-reduction and revenue-enhancement advantages. Three types of collaboration opportunities (refer Figure 5) are especially promising:

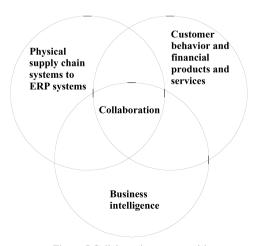


Figure 5 Collaboration opportunities



# Collaboration of physical supply chain systems to ERP systems

This type of collaboration (for example, the procurement system to the payment system) allows for information to flow from one system to another (an "electronic handshake") such that trading partners do not have to re-enter information or step out of the interaction to complete the next step (Walters, 2004). Effective collaboration between systems can do following: cut the time required to complete a transaction; reduce errors in re-keying information and reconciliation cost on the back end; increase the likelihood that trading parties complete transactions; and facilitate a more efficient interaction between trading partners.

# Collaboration between customer behavior and financial products and services

This opportunity speaks to the ability to understand the trading partners' financial needs and preferences at a particular interaction point, and then provide the appropriate financial products at the right time to streamline the supply chain. Consider the following example of a foreign buyer that is purchasing a large piece of equipment. At the point of transaction, the seller may be able to offer that buyer a letter of credit option, a financing option, and a capability to electronically track the shipment through customs, allowing for immediate payment upon custom's inspection of the goods. This arrangement brings important-advantages to both parties. The seller not only reduces the time needed to get the inventory out and accepted at the destination, but also taps into a new revenue stream by offering access to financial providers. The buyer is happier because of the "no-hassle" transaction process.

# Collaboration based on business intelligence

This opportunity means that the right financial or physical information is made available to the right person at the right stage to enable superior decision-making. Today, trade terms often are set a standard way (for example, two percent discount in 10 days/ net 30) and usually do not discriminate on the basis of past performance. Take our same example of the International buyer. Typically, the buyer would pay 90 days out-which means that the seller is basically funding the buyer 60 days of capital. Assuming a cost of capital at 10 percent, that is 1.67 percent of lost capital for the 60 days of outstanding receivable. On a \$100,000 invoice, that would be \$1,667 for 60 days. Armed with this kind of information, a company can more intelligently price the product and the relationship.

The key to capitalizing on these collaboration opportunities is to automate the business processes using any of the e-collaboration tools (refer Figure 5) and integrate financial processes and information throughout. Few of these processes are integrated today. But once those processes are integrated, trading partners will have access to the right products and service when they need it on a transaction basis-irrespective of which electronic channel they use (Neves, et al., 2001). Further, the buyer, seller, and all of intermediaries will have a single, consistent and complete view of the transaction. The buying process will be less prone to error, and management will have a complete and accurate base of enterprise information.

#### VI. BENEFITS OF INTEGRATION

The business benefits of Integration include revenue enhancing, cost reductions,

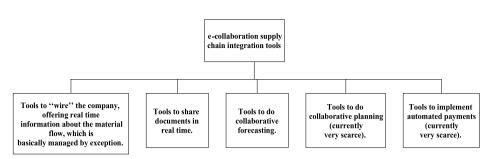


Figure 6 e -Collaboration Supply Chain Integration Took

efficiency improvement, and aid in future planning (Zeichick, 2004). The benefits of integration are compelling for all parties involved in a transaction—sellers, buyers, and solution providers.

For sellers, end-to-end financial integration facilitates demand forecasting, improves the ability to manage credit risk, sharpens the focus on dispute resolution, and reduces the need for internal financing of accounts receivable. When purchase orders, shipping documents, and invoices are error-free, buyers accept them faster, decreasing a seller's DSO. Working capital is thus reduced in two ways: (1) fewer exceptions in order processing smoothes order flows, trimming inventory levels and (2) faster and more predictable cash flows create earnings stability, lowering company-specific risk and, thus, the cost of capital. Processing costs decrease by reducing the need for labor, paper, and manual processing equipment. This can translate to a three to five percent reduction in a seller's total purchase costs (Walters, 2004).

Integration of the three flows also paves the way for creating new revenues. Sellers can offer buyers a broad selection of financial services, such as risk mitigation and spot financing, on an individual transaction basis. In turn, access to information opens up other possibilities in planning and analysis and in

customer service. Detailed account histories help build a better base for forecasting and identifying service and sales opportunities. And importantly, the availability of accurate invoice and payment information lets companies do a better job of negotiating trade terms.

Buyers can enhance their ability to forecast and synchronize purchase arrivals, thereby reducing working capital. By eliminating manual processes and reducing reconciliation costs, buyers can reduce overall purchase costs by two percent to four percent (Spekman & Davis, 2004). They also can improve transaction efficiency by being able to walk through a transaction in one sitting without having to go offline for activities like financing.

For solution providers (such as ERP companies and providers of financial products) the greatest opportunity lies in creating new revenue streams. They can accrue reseller and "click-charges" from corporate clients for initial solutions such as invoice presentment and payment, which perhaps could be jointly marketed with physical fulfillment and logistics software providers.

Additional possibilities center on the availability of more comprehensive data about transactions and their participants.



Such information has great value in enhancing supply chain processes. The buyer-seller negotiation process can be improved through actionable information about the total cost of responding to a request-for-quotation. Such comprehensive information would, for example, allow companies to more accurately quantify the risk and cost implications of using certain financial products like insurance and trade financing. The negotiation process also can be improved by the capability to track the cost (working capital, float, and so forth) of a supplier's prior deviation-to-service level in areas such as invoice accuracy. Thirdparty solution providers are especially well positioned to offer such value-added information.

# VII. KEY CHALLENGES IN INTEGRATION

The benefits of physical, information and financial flow integration are far too compelling to ignore. But for companies to fully capitalize on the opportunities, they need to first overcome some key challenges:

# Organizational maturity and sophistication

Physical and financial collaboration is best undertaken by organizations that are already on the supply chain transformation path. Companies need to improve the efficiency of both their physical and financial supply chains before they can begin to successfully integrate the two.

#### **Organizational barriers**

Departments within organizations have long tended to operate independently, acting within their individual silos (Walters & Lancaster, 1999). Breaking down these

walls will help ensure ownership of all the collaboration activities-regardless of where they occur at the physical-financial supply chain interface. As the barriers crumble, companies will find that many touch points between the physical and financial supply chain need to be examined and redefined.

#### **Solution provider network**

There is no single provider that can bring about physical-financial collaboration. The solution needs to be carefully pieced together from various providers. Companies must be willing and able to knit together providers that enable the successful collaboration of the two supply chains (Porier, 2002).

The task of integrating the three flows may at first seem overwhelming. But organizations can take certain steps to get them on the road to realizing the full value of collaboration. First, break up the task into bite-sized chunks. Identify two or three key pain points, such as reconciliation costs or days of sales outstanding, and begin to focus intensely on those areas. Don't try to take on the entire supply chain all at once. Second, once the critical pain areas are identified, work backwards to define the interaction points, information needs, and product/service requirements. Third, create a cross- functional task force. The team should include representatives from finance. logistics, procurement, and IT. Task the team with defining the entire flow of processes surrounding the pain point and then solving the problem. Finally, act quickly. Delays only forestall the realization of the benefits (Martin, 2004)

The economic advantages of efficiently managing the three flows have been demonstrated over and over again by the industry leaders. Companies that can successfully integrate these three flows will see those competitive advantages reach a new, breakthrough level.

With the advent of ICT the organizations have started to tap its potential but still they face the following challenges:

- a) Cross-Functional Business Processes: An end to end business process still runs across multiple applications.
- b) Global trading Communities & standards
   Compliance: As organizations expand into new regions and industries they must integrate new data formats
- Multi Channel Support; Companies must be able to provide multiple application interfaces, devices (i.e. Wireless), and partner connectivity options
- d) Event driven Architecture: For every event, there is a necessary reaction in order to complete a process.
- e) RFID: New mandates for visibility and transparency throughout the supply chain

### VIII. THE CASE OF RELIABLECURE

Reliablecure Corporation - a Mumbai-based supplier of biological adhesives that are used to close surgical wounds - is a global company that relied on multiple supply chain partners. To get its adhesives from the manufacturer in Vienna, Austria, to hospitals in the United States, Reliablecure has to work with several companies, including the manufacturer in Vienna, a freight forwarder, a warehouser, and a package delivery company. As a result of the complexities of supply chain coordination, inbound transportation could take up to two weeks.

Reliablecure's supply chain was also missing the seamless infrastructure among the various members. Disparate information systems belonging to different partners could not always communicate order status information in an automated fashion. Getting outside financing was also a particular challenge. The highly perishable nature of the inventory in transit - Reliablecure's adhesive contains blood plasma components that have to be kept at temperatures ranges between 2°C to 8°C, meant that lenders faced higher risks that their collateral would lose some or all of its value. Should valuable inventory get compromised somewhere along the way, the lender would lose its security, a risk few lenders would be willing to take. And without an integrated information platform to pinpoint the exact location and value of the goods at any given point in transport, getting at the collateral posed even more problems. Thus, Reliablecure's could not find lenders that would use its inventory to secure a loan.

### IX. HOW INTEGRATION BENEFITTED RELIABLECURE

What Reliablecure needed - what many other companies need today - is an integrated approach to global commerce. There are few finance companies that have transportation and/or logistics capabilities. Conversely, there are few transportation and logistics firms that have lending capabilities. But with today's focus on supply chain management and an understanding by the various supply chain "links" that collaboration and an "overlap" of supply chain activities can make processes more efficient and profitable, finding sources that offer integrated solutions is critical (Mieghem, 1999).



Some service companies have introduced software (RFID in combination with Electronic Product Codes (EPC) can help computers automatically and uniquely identify everyday objects) that can help integrate the tracking of goods and materials with the payment, integrating the flow of funds with the actual physical movement and management of the goods from point of origin to point of destination (Shiels, 2003). This is particularly important in the case of time-sensitive inventory, such as that being produced by Reliablecure, or when trying to secure financing against Inventory that is warehoused overseas or is in transit. Once the capabilities of logistics, transportation, and financing can be brought together, then a number of cash-flow opportunities begin to emerge.

### X. HOW RELIABLECURE CHOOSE A SUPPLY CHAIN FINANCIER

Financing is still not considered an integral part of the supply chain and a linear activity. Supply chain is considered to be as plan, buy, make, move, and sell. Although, the concept of supply chain financing is still at its infancy but it can make a huge difference to a company's cash flow and to its operational savings. (Farris, et al., 2002).

The answers to the following questions may be helpful in deciding whether a financial service provider will be able to provide supply chain financing?

- Q1. Is your financial supplier linked to a logistics or a transportation company? Can they share information?
- Q2. Does your financial supplier have warehouse capabilities?

- Q3. Can your financial supplier help track your inventory? Can it share this information with other providers?
- Q4. Can it link its lending capabilities to your supply chain activities of plan, buy, make, move, and sell?
- Q5. Can your financial supplier help move and manage your goods?

The financial advantages of integrating goods, information. and funds quickly apparent to Reliablecure, which recently selected one company to handle some of these key financial services. thereby eliminating a great deal of risk and optimizing its transportation/ financial efforts. This firm now provides Reliablecure's entire distribution network from the manufacturer in Vienna to hospitals in the United States. The firm knows exactly where the products are at any given point along the way. And, more importantly, so does its financial service provider, which is assuming the risk of perishable inventory. This would be difficult to achieve if it were not the same company moving the goods, managing the information, and financing the Inventory. Because it will be part of the operational effort, the provider was able to give Reliablecure a larger line of credit than the Indian company could get through a traditional lender. Reliablecure received a \$ 6 million line of credit -secured by its inventory, biological adhesives - and accounts receivable.

Reliablecure also has less to worry about on the logistical side. The provider picks up the shipments at the Vienna facility, puts them on refrigerated airplanes, and manages the customs clearances and transport to the provider's refrigerated warehouse facility in the Fort Worth-Dallas area. There, the biological adhesive is stored and catalogued in the provider's warehouse management system. When orders come in from hospitals and medical clinics, the provider's personnel pack the biological adhesive into special ice-packed cooler containers and send the containers to their destinations via the provider's small-package network.

This integrated distribution approach has yielded big benefits for Reliablecure in terms of speed of delivery. The company has cut the time required for inbound transportation in half - no small advantage considering the perishable nature of the inventory. The reduction of days-in-transit has also enabled Reliablecure to reduce inbound transportation costs.

What's more, dealing with a single-source provider has soothed Reliablecure's administrative headaches. Freed from having to coordinate multiple suppliers, the company can concentrate on marketing its innovative surgical products to the medical industry.

There's progress on the Information side of things, too. The flow of information is now virtually seamless, starting with electronic pre-alerts sent by the provider to U.S. Customs and the Federal Drug Administration. Armed with precise information about the exporter and importer as well as content and values, U.S. officials can often clear the goods before the planes even land. Once inside the country, several of the provider's systems

continue the exchange of information. Order management, international trade, inventory management, and package tracking systems are all interconnected, minimizing the risk and agony of Treasurer's and CFO's against manual errors, tempered shipping container and misplaced shipment which may put company's reputation at risk.

#### XI. CONCLUSION

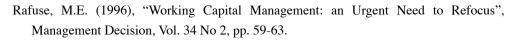
Reliablecure is a lesson on the power of goods, information, and funds flowing together in an integrated, coordinated fashion. It's not important which provider is offering these capabilities. The lesson to be taken from this case study is that it illustrates the possibilities of how far a collaborative relationship can go and what can be accomplished for global companies. It can serve as a successful model and give those that are investigating these concepts an idea of how to optimize the relationship. The secret lies in addressing all three flows of commerce - and doing so as seamlessly as possible.

Failure to properly manage the flow of goods will likely mean that your products won't make it there on time without costing you a fortune. Without proper information management, you won't be able to tell your customers when their orders are coming. Without adequate working capital and financial flexibility, you won't be able to pay your suppliers and expand your business.



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### Short Bio of Dr. Zillur Rahman

Dr. Zillur Rahman holds a PhD from Aligarh Muslim University in India. He is an Assistant Professor in the Department of Management Studies, at IIT Roorkee. His area of interest includes International Business, Information Systems, General Management, and Strategic Management. Dr. Rahman has over forty publications, both in International and National Journals.