

Supply Chain Management

The Backbone of Success

Guest article

Bhadresh Pathak, L&T SuFin



CONTENTS

CSR

Empowering Communities
Accelerating Development 4



Addressing the community's requirements of Health and Education

PRODUCT

Cladded Valves 30



A cost-effective alternative to Corrosion-Resistant Alloy Valves

COVER STORY

Supply Chain Management:
The Backbone Of Success



- Q&A with Basavarajappa D Head - Global Operations
- Chip Off The New Block (Chain)
- Winds of Change
- A Dialogue Between SCM and Sales
- The China Factor
- Green is the New Black
- Revolutionising the Supply Chain
- Effective Supplier ESR2
- Innovation in Logistics

PEOPLE

Value Co-creation is
Our Success Mantra 22



Chat with R Krishnakumar,
Head - Domestic Sales

EVENTS

A Sporting Attitude 26



Sports tournament conducted for
the employees by the company

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Message from the Chief Executive

Dear Colleague,

In the 1920s, Henry Ford, the pioneer of mass production, envisaged his new car plant as a vertically integrated operation, where all components required for a car were manufactured in-house – from steel components, wooden floorboards to even tyres. To enable this vision, Ford acquired control of coal and steel mines, woodlands and rubber plantations, built a steel plant and foundry and ran transportation companies. In contrast, Apple, the most valuable company of our times, does very little manufacturing in-house.

Supply Chain Management (SCM) has evolved considerably in the last 100 years, especially driven by the growing importance of lean manufacturing. However, the impact that SCM has on an organisation's profitability and customer satisfaction remains undiminished – no wonder SCM is considered the backbone of an organisation's success. The challenges that SCM face are diverse, complex and dynamic, and decided by factors such as company objectives, market compulsions, competitive pressures, technological disruptions and environmental concerns.

At L&T Valves, SCM is intrinsically linked to some of our key focus areas, including Customer Satisfaction, Credibility, One-time Delivery and Cost Reduction. Over the last few months, we have made significant changes in our supply chain management function: by rationalising vendors, reducing inventory, maximising capacity utilisation, expediting vendor payments, strengthening logistics and adopting digitalisation. The responses have been positive, and I am sure the momentum will be maintained.

The newsletter has captured the major global trends and developments in the SCM domain. I hope this knowledge will enable all of us to leverage the power of SCM and make our dreams come true.

Regards

A handwritten signature in blue ink that reads "S. Kalyanaraman".

S Kalyanaraman

Empowering Communities Accelerating Development

L&T Valves recently handed over two projects constructed under its Corporate Social Responsibility (CSR) – a government school at Vaiyavoor and a public health centre at Thiruputkuzhi, both in Kancheepuram, Tamil Nadu.

The government higher secondary school was inaugurated by Mr. S Kalyanaraman, Chief Executive and Director, L&T Valves in the presence of Mrs. S Usharani, the Principal as well as the faculty, students, parents, and representatives from the community. The school was funded from CSR funds sanctioned by L&T Valves in 2020-21.

Speaking at the occasion Mr. Kalyanaraman said, “L&T Valves drives inclusive growth through its CSR initiatives by empowering communities and accelerating development. We consider education to be an investment for the future and join hands with the government to help transform lives”. He quoted from *Thirukural*, a classical Tamil text that “Learning is the true imperishable riches; all other things are not riches”. He exhorted that the students should focus on learning and making a difference to their families, school as well as the society.

Mrs. S Usharani, Principal of the school, thanked L&T Valves management for the support provided and advised the students to make the best use of the facilities and get good results.

Mr. Kalyanaraman and team were also felicitated at the Thiruputkuzhi public health centre by Dr. T Arulmozhi, Block Medical Officer, Kancheepuram Block at a function witnessed by the staff of the centre and members from the community. The health centre, which caters to around 240 villages, renovated under the CSR scheme of L&T Valves. Dr. T Arulmozhi thanked L&T Valves management for their role in the upkeep of the 50-year-old primary health centre.



Government School, Vaiyavoor



"L&T Valves drives inclusive growth through its CSR initiatives, by empowering communities and accelerating development."
S Kalyanaraman, CE

Public Health Centre, Thiruputkuzhi



Tiruputkuzhi draws its name from a mythological reference. In the Ramayana, Sita was abducted by the demon king, Ravana, who tried to fly away to Lanka with her. At that time, a divine bird named Jatayu fought with Ravana but was mortally wounded. When Rama and his brother, Lakshmana, went in search of Sita, they saw Jatayu. The latter told them about Sita's abduction and took his last breath. Jatayu belonged to the Pul (a family of eagles) and was buried in a pit (known in Tamil as 'kuzhi') and the place was thus called Thiruputkuzhi.

SUPPLY CHAIN MANAGEMENT: THE BACKBONE OF SUCCESS

Quality, cost and delivery of product are factors of prime importance for the supply chain. While lean manufacturing brings in benefits such as reduced lead time and enhanced competitiveness, global price fluctuations and logistics issues triggered by the pandemic aggravate the situation. SCM plays a key role in translating this complex algorithm into activities that drive procurement of materials from vendors, the manufacturing process and customer satisfaction. How do they do it? Over to Basavarajappa D, Head - Global Operations, L&T Valves and a Six Sigma and Lean Black Belt.

What are the key strengths of L&T Valves' supply chain?

The ability to source the required raw materials and to develop vendor bases across the globe are the key strengths of our supply chain. Identification of 'Quality Suppliers' that meet the required standards is of prime importance in finally being able to deliver a quality product to our customers. This is achieved through a strong sourcing network with the support of our Quality Assurance team. Another key strength of our supply chain has been the ability to optimise costs by focusing on improvements in the manufacturing processes at the vendors' end.

What are the biggest challenges faced by L&T Valves supply chain?

One of the biggest challenges being faced by our supply chain is the presence of a scattered vendor base that had been established all through the years. This has posed challenges in terms of the utilisation of each of the vendors to maintain a sustained relationship and maintain the quality standards of our components. The vendor rationalisation process, which has recently gained pace in our system, has shown the desired progress to

address this concern, and is soon expected to provide effective results. Another major challenge has been the cost of logistics, and unexpected situations such as the current pandemic, which have further added to the negative impact. Our journey towards cost optimisation techniques in logistics has gained pace and will help us overcome this challenge.

What are some key innovations in supply chain in recent years that have helped improve delivery time and overall customer satisfaction?

With delivery time and quality of product being the factors of prime importance, there are two main areas that our supply chain has been focusing on – vendor base rationalisation and the concept of procurement in kits. Having an optimal number of vendors with established manufacturing processes that suit our requirements has helped us to cut down on the number of interaction points, and concentrate our resources on a focused set of selected vendors. The concept of procurement in kits had initially started off with procurement of the main set of castings from a single vendor rather than having a scattered order. This is being extended to all other components, and the goal

would be to feed our production lines with a kit of all the materials required for manufacturing. Both these actions have started yielding results in terms of improved delivery time and better quality products from our vendors.

What are some of the digitalisation initiatives undertaken for our supply chain? Are we looking to implement technologies such as blockchain, AI and ML?

Our primary target has been to eliminate redundant activities in our processes, and to concentrate on the value addition that is provided to our customers. Some of the notable digital initiatives in our supply chain have been the introduction of: (i) Advance Shipping Note – to control the inflow of materials in line with our production requirements to cut down inventory carrying costs; (ii) Foundry allocation tool – to systematically assess our available and current foundry loading pattern for order placement decision; and (iii) 100% ERP-based order placement and tracking. To further enhance the digital footprint in our processes, we are exploring advanced technologies such as AI and ML that would aid supply chain operations in data analysis, decision making and logistics optimisation.

What is the impact of unforeseen circumstances such as the recent pandemic on the supply chain?

The biggest effect that circumstances such as the Covid pandemic have is the non-availability of suitable manpower at our vendors' end. This deeply impacts the productivity and quality of goods received from vendors. The ability of our vendors to retain their manpower (in terms of skill and quantity) would be important to maintain the consistency required to meet the demand of L&T Valves. The disruptions caused in logistics and the global supply network is another effect. There have been instances of mismatch in lockdown periods across the globe, which disrupted the import structure of the supply chain network. All these issues together create price fluctuations, which will impact us badly if not acted upon with a strategically devised mitigation plan.



When it comes to the valve industry, inventory management becomes difficult, considering the various sizes and quantities of valves. How have we handled this?

A major portion of the valves that we supply are custom-made and thus have their own unique requirements in terms of raw material and components. Given the conventional way of assigning material codes to each of the components, we are extensively working on ways to standardise the methods we use to classify our components. This gives us the provision to maintain our inventory in batches, which will provide us ease in material handling. Apart from the fact that the variety is high, the complete process of stock keeping and material accounting is completely ERP-driven, and we constantly keep enhancing our ERP capabilities to address the growing demands. With reference to the system of maintaining the stock at our manufacturing locations, the entire storage set-up functions on the concept of bar-coded locations.

Every new order we get might have a custom requirement. How do we plan for each new requirement so that we can deliver the order on time?

It is true that the valve industry handles a variety of materials, and the 'repeatability factor' is low for a major portion of our orders. Even though we have our own set of standard products for the market, evolving demands require flexibility in terms of the product we can offer. The orientation of the product is based on aspects such as the application, design and process of manufacturing. We are able to address this with our well-planned approach towards procurement activities.

Synchronisation of material planning along with the vendor to process our requirements in batches, depending on the type, material grade or size, provides us with advantages in cost control and quick delivery time. Over

a period of time, we have gained traction in training and developing our vendors to handle the variety and quantum requirements of our industry.

How do we maintain our relationships with our vendors, so that we can procure all the required raw materials on time?

We have always strived to build and sustain a healthy relationship with our vendors. We have positively channelled all our processes and actions towards grooming our vendors as equivalent partners in our business of valve manufacturing. Our concept of vendor rationalisation is aimed at the same target – to attain a vendor base that is trustworthy and reliable. It also aims to provide us with an opportunity to keep up the expectations a vendor has while partnering with us. Ensuring proper loading and order distribution to all our vendors provides them with the necessary inputs to grow along with us, and to maintain a win-win situation.

How do we deal with fluctuating costs when it comes to materials and other raw materials?

Cost fluctuations in the global market are common but not very predictable. The best way to mitigate these fluctuations, in order to shield the cost of our product, would be to optimise our manufacturing processes. The target is to bring down the overhead costs to balance fluctuating material prices. Our supply chain has been strong enough to develop and constantly optimise the processes at the vendors' locations. Our teams have been working towards teaching and implementing lean concepts and using six sigma methods to enhance the productivity of the vendor units. Process improvements also provide us with the scope to reduce the scrap and volume of rejections, thus bringing down the cost of poor quality.

How have we positioned our various manufacturing plants to meet the demands of our customers?

Being a company based mainly out of southern India, we have concentrated on two main aspects to meet customer demands across the globe – building a sustainable distribution channel partnership, and maintaining a good logistics system. In addition to our channel partners across the globe, we have also positioned two of our own units abroad to meet customers' demand (one in Al Jubail, Saudi Arabia, and the other in Houston, US) to cater to the needs of the KSA & Middle East and the US markets respectively. The capacities of our manufacturing units in India are capable of meeting customers' demands across the globe.

What are some of the future projects we have planned for our supply chain to improve our services to our customers?

We plan to see our supply chain evolve much greater heights, with the

progress of the kitting strategy that we have initiated. The initial phase of consolidating our valve castings from a single source as set has geared up and is contributing commendably to our overall process optimisation target. We plan to further extend this concept to all other components to obtain materials as kits for our manufacturing lines. As we progress towards full-fledged implementation of the kitting strategy, we foresee new avenues opening up, which will give us opportunities to improve our processes and constantly mould ourselves to evolving market needs.

What are some of the global best practices that you are planning to implement on our supply chain?

In line with L&T Valves' vision to become the most trusted valve company in the world, we want our supply chain partners to grow along with us and become branded partners in our journey. Our vision, to become a world-class manufacturer, can only be achieved if our supply chain partners also implement and work on the best practices to become world-class, both in terms of quality and delivery.

How does lean manufacturing depend on SCM?

Incorporation and strategic execution of lean concepts in our manufacturing processes have always been the top priority among the various continuous improvement initiatives. To realise the benefits, such as reduced lead time and improved quality of our products, the availability of the right material at the right time becomes highly important. This is where the supply chain plays its part. A lean manufacturing set-up focuses on the 'pull' concept, and an able supply chain with the potential to deliver the raw materials required as per demand will ensure the sustenance of the lean set-up.

How has supply chain management supported lean manufacturing

goals such as reduction of operations cost and lead time, and improved quality?

With the implementation of lean concepts in our manufacturing processes, and the same gaining pace in recent times, supply chain has played a key role in supplementing many of the requirements that this transition would demand for its initiation and sustenance. The deployment of the kitting strategy has brought in measures that have contributed significantly to the areas of reduction of lead time and elimination of waste from our processes. It has helped bring in alignment among the various activities within supply chain management. The vendor development team, comprising of members from supply chain and Quality Assurance, have made good progress in upgrading the processes of our existing vendors and identifying new vendors, so that our vendor base is in line with our current business requirements. A constructive feedback and corrective action methodology, adopted with our vendor network, has helped ensure that the materials we receive are as per quality standards, thus minimising rejections.

What more can supply chain management do to help with lean manufacturing?

As we move ahead in lean manufacturing, the demand generated for on-time supply of raw material and quality requirement would be highly significant. For this, our supply chain function needs to be dynamic and evolve into a Lean Supply Chain. Sustainability of the lean concepts implemented in our manufacturing set-up is key to achieving excellence and building a strong, agile supply chain network (to shield us from fluctuating prices and market conditions) and will help us achieve this target.

Chip Off The New Block (Chain)

Does blockchain technology really apply to supply chain management? Can it solve supply chain problems and increase profitability of an organisation? To answer these questions, it is important that we understand what the blockchain technology is, how it is different from current transaction systems, the benefits of blockchain for supply chain and the constraints involved.



Aswin Kumar
Assistant Manager – Digitalisation

Blockchain is an Internet-based technology that enables secure, fast and low-cost transactions through public validation, secured record-keeping and distributing transactions in immutable and encrypted ledgers. The technology was invented to enable transactions in bitcoin, a digital cryptocurrency that operates independently from a central bank. The blockchain helps provide a platform for creating and distributing the ledger of transactions to all the computers linked in the network. Encrypted transactions and ledgers offer more security than the current banking models, almost instantaneous transfer of data via the Internet eliminates banks' two- to three-day clearing process and some block chains offer extremely low transaction costs for any size of transaction.

Blockchain's Value Addition in Supply Chain

Three major value additions by blockchain to the supply chain are:

Improved Traceability: The real-time, verified, immutable data of the

blockchain helps organisations improve their operational efficiency by mapping and visualising supply chains and providing consumers with the sourcing information of the products they buy. Counterfeiting can be greatly reduced by immutable record-keeping and validation present in the blockchain.

Increased Transparency: The transactions in the blockchain are visible to all the authorised parties in the system and the transactions cannot be modified or tampered with. Real-time information availability and sharing in blockchain enhances corporate governance compliance and enables improved regulatory compliance and reporting.

Increasing Efficiency and Speed and Reducing Disruptions: The distributed information mechanism can be used to share real-time authorised data along the supply for better planning, execution and forecasting. This can improve the efficiency of the supply chain end-to-end and will reduce disruptions significantly.

These main properties of the blockchain technology are used in cases like vaccine distribution (where blockchain provides traceability in every step to assure manufacturers, hospitals and the public), food supply (where food safety and freshness is assured through traceability and transparency), and the oil & gas industry (where blockchain provides transparency to oil & gas supply chain participants for quick response demand spikes).

Constraints in Adoption of Blockchain for Supply Chain Management

Size of the Network: Blockchain technology uses distributed consensus mechanism for validating transactions in the network. The larger the number of participating entities in the network, the more secure and accurate is the validation. For cases where the number of trusted parties in the network is small, the consensus mechanism may not be completely valid for all transactions.

Absence of Standards: No comprehensive supply chain standards are in place for blockchain solution providers. This leads to problems in solving consensus and choosing the type of encryption.

Data Accuracy: Not all the participants in the supply chain maintain complete data and the amount of data produced in supply chains are huge.

Although blockchain has its constraints, it is a useful tool for addressing the deficiencies in the current supply chain processes. There is considerable scope for improvement in the current supply chain in terms of end-to-end traceability, speed of delivery and transparency, and blockchain technology can help in tackling some of these challenges.



Winds of Change

Tech Disruptions in Supply Chain Management

Supply chain management is affected by technological disruptions. To handle both risks and opportunities effectively, organisations must take a proactive approach towards preparing themselves to handle the changes.

Change is unavoidable in today's supply chain management. Moreover, the rate at which technological advancements are taking place – and are being accepted by businesses around the world – implies that these technologies will be vital to an organisation's overall performance in the coming decades.

Thus, it is probably more important now, than ever before, to make the supply chain industry 'future-proof' and 'technology ready', so as to maintain a competitive edge. In this article, we will explore the following questions:

- What are the risks and opportunities that organisations will encounter in the next few decades?
- How are these risks being mitigated and opportunities are being exploited by organisations around the globe in the context of supply chain management?

Technological Opportunities

Let's face it: Supply chains aren't always as efficient as they should be. There's always space for improvement – and disruptive technology appears to be helping us get there. To begin with, let's look at five technologies that are expected to change the future of

supply chain management: Blockchain and Cryptocurrencies, Internet of Things (IoT), Smart contracts, 3D printing, and Artificial Intelligence/ Machine Learning.

Blockchain and Cryptocurrencies:

Blockchain has been referred to many as 'the biggest breakthrough' in recent years. Even though it has been dismissed by some as 'just a hyped-up technology', it has proven its worth in a variety of areas, including the supply chain industry. Blockchain has the potential to save around \$31 billion for the food and beverage industry alone, according to research.



Jetkumar Meshram
Assistant Manager – CMG

The most common benefit of blockchain has been to increase transparency. Obscurity in data sharing often has negative results in a supply chain. Now, data can be exchanged with all stakeholders involved in a supply chain by using blockchain technology, which is far more secure than cloud data sharing as it is immutable and uncorruptible.

Blockchain-based cryptocurrencies are also getting popular in the supply chain industry. Industries are beginning to accept cryptocurrencies as more and more countries recognise them as legal tender. When compared to legacy banking systems, cryptocurrencies may become the preferred means of payment for cross-border trade since they give a higher level of transparency, speed of transfer and security.

Internet of Things: The Internet of Things (IoT) is a network of connected objects that have been technologically equipped with sensors to gather, exchange and transmit data. It allows us to access real-time information on a much more advanced scale, which will improve visibility into day-to-day operations & accountability.

This will give us:

- a) Increased control over production
- b) Better inventory management
- c) Improved cooperation among supply chain partners
- d) More effective order tracking and delivery
- e) Better customer Service

According to supply chain experts, IoT will soon become ubiquitous across industries over the next five to 10 years, thus indicating the need for us to start working towards it now.

Smart Contracts: Apart from the above technologies, which are widely known, another wonderful invention that has emerged are 'smart contracts' or transaction protocols that are designed to run automatically when specific circumstances are met. It may mean automatically creating an invoice when a shipment arrives at its destination or executing financial transactions between stakeholders in the supply chain. Smart contracts are now being used to automatically settle payments with cryptocurrencies. They eliminate the need for a third-party arbitrator, thereby significantly speeding up the procedure.

3D Printing: Often referred to as additive manufacturing (AM) as well, 3D printing is a game-changing technology that will greatly impact global supply chains and operations. In 3D printing, physical objects are created from a three-dimensional digital model by layering small layers of material in a sequential order, thereby saving costs by eliminating waste.

For example, GE is already developing 3D-printed fuel nozzles for aircraft, and is planning to mass-produce them. The nozzles are made up of around 40 different parts. Previously, manufacturing the nozzles necessitated a lengthy supply chain; on the other hand, today's manufacturing process is based on a single plant and consists of only one production phase. 3D printing thus has the potential to reduce product production time drastically.

Artificial Intelligence / Machine Learning: Artificial Intelligence (AI) and Machine Learning (ML) are penetrating the supply chain industry at a greater rate than ever before.

Using scenario analysis and numerical analytics, these technologies provide new automation power in assisting planning activities, demand forecasting, predictive maintenance, synchro modality and collaborative shipping. As a result, AI and ML capabilities can drastically reduce the error rates and lower operating costs – and thereby improve supply chain flow.

There's no denying that new technologies will disrupt a variety of work procedures and methods. However, these changes will be for the best. In time, these technologies will undoubtedly become the supply chain industry's backbone. As a result, we'll see a greater emphasis on integrating and layering technologies.

Start Now

With the emerging new technologies in supply chain, companies can improve their manufacturing pace at the same time reduce costs. Making progress strengthens the company's favourable image and gives employees a sense of accomplishment. Although incorporating these new technologies into the current system might be take some time and effort, but these are necessary modifications that are unavoidable for many firms. Companies should begin by determining the prospects that are worthy of immediate investment, and those that should be postponed. They should focus first on the prospects they have control over and then reach out to others upstream and downstream elements in their supply chain. We, at L&T Valves, have dedicated teams in place to implement the latest technologies into our existing system so that we can stay ahead of the competition. This helps us improve our customer satisfaction with better delivery times and improved quality of the products. And we will continue to improve the technology available with us to keep up with the latest trends.

A Dialogue Between SCM and Sales

In organisations, each department plays a major role in the success of the company. While the sales department is tasked with securing orders from customers, offering them solutions that meet their technical and commercial requirements, the supply chain management department works within the constraints of price and cost to maximise operational profits.

To understand how these two departments excel in the face of seemingly contradicting objectives, we listened in on a conversation between Prasanth Prasad, Head of Sales - Europe, Middle East & Africa and Rakesh S Vibhuti, Sr. DGM – Manufacturing Operations...

Prasanth: As a supply chain professional, do you believe that L1 is the mantra?

Rakesh: L1 is not the mantra, if you ask me. There are many other factors which influence our decision making.

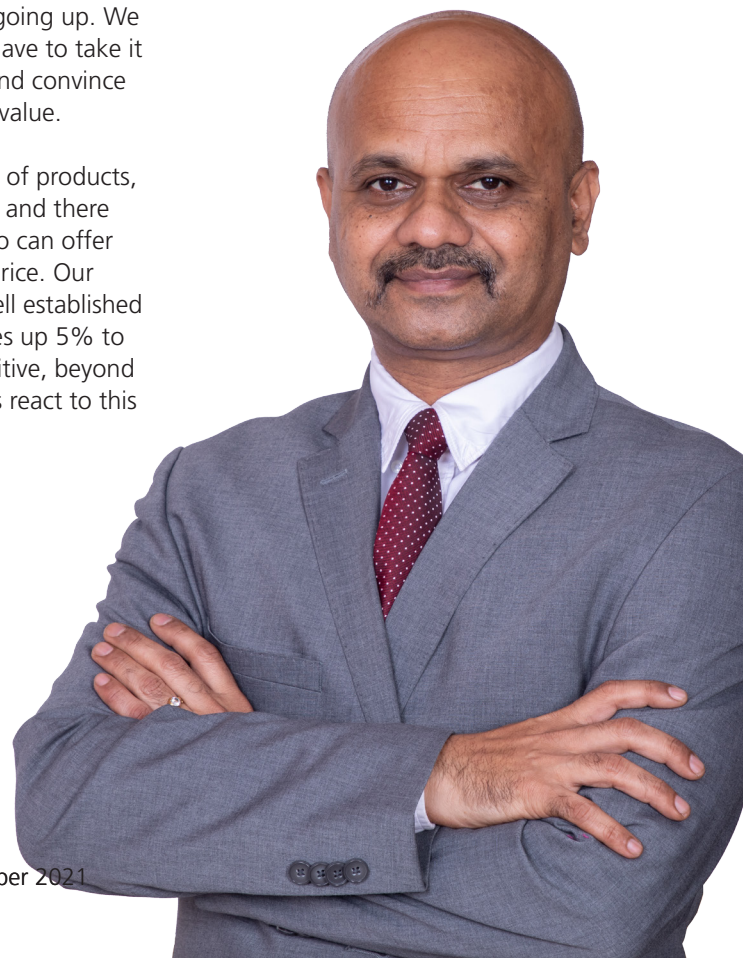
Prasanth: What are the key aspects that you consider before placing an order?

Rakesh: For casting and forging we consider raw material price, weight of the component, the process used, supplier track-record, locations, etc. For machining, we consider factors like cycle time, distance to plant, etc. We work out our price expectation and find suitable vendors who meet our requirements. Using this method, we were able to reduce price by 7% even in this inflationary market.

Prasanth: Do you really believe all the data that the foundries provide? Valve customers do not want to accept that the prices are going up. How do you tackle this situation?

Rakesh: We use LME (London Material Exchange) as a reference for international prices and MMR (Metals and Minerals Research Report) for national prices. The prices quoted by our vendors mostly match this. So, yes, the prices are definitely going up. We have to manage it. We have to take it up with the customers and convince them increase the order value.

Prasanth: For our range of products, there are many suppliers and there would be somebody who can offer our customers a better price. Our quality and brand are well established and even if the price goes up 5% to 7%, the feedback is positive, beyond which...How do vendors react to this market situation?



Rakesh: Take the example of stainless steel. While we cannot pass on the entire price hike to the customers on account of the competition, we work with vendors to develop alternate processes and methods to reduce cost. We have even considered alternate vendors, since at the end of the day, we need to meet the customer's expectations.

Prasanth: Incidentally, I am curious about negotiation styles. Do you prefer to work with a vendor who offers a 'last price' and sticks to it or somebody who continues to drop prices as the negotiation progresses?

Rakesh: I would like to go with a vendor who has worked out and given his best price.

Prasanth: With sales guys, that is a problem. I can't offer a price and maintain that I have given everything, when the negotiation moves to the higher levels.

Rakesh: The relationship with the customer becomes important in cases like this. I would like to know your strategy for new orders when prices go up.

Prasanth: In every EPC project, we compete with four or five valve manufacturers, at par in terms of capability and with large capacities. We compare prices, we go for options where the competition is less, otherwise, every new order is a new case, there is no fixed strategy. We normally push all limits to take the first order. Generally, once we take the first lot of orders, the second and third will automatically come to us. If the execution is good, no one wants the risk of vendor change, approval, etc., and we often get a chance to increase the prices and make some money.

Rakesh: The L&T Valves brand, does it help us get an order?

Prasanth: The biggest advantage we have is from the financial perspective. Except for the large corporates, most of the valve companies are family-owned. I remember a Spanish family-owned valve maker who picked up a lot of orders, sometimes without even an LC, and just went bankrupt. In our case, if they know that we are part of L&T, they are confident that the order will be completed – even if there's a delay, there won't be bankruptcy! That's a big strength.

Rakesh: If compared to two years back, the deliveries have greatly improved. Can we encash the same with the customers?

Prasanth: The only negative point with L&T Valves has been the delivery, and the incident two years ago was unfortunate. Then again, it is improving, the feedback from the expeditors on the shopfloor is positive, the confidence is coming back, but we have to ensure that it is never repeated.

Rakesh: My next question also is related to deliveries. Right now, our deliveries are good. Since we are working on numerous enquiries and offering similar deliveries to all, how will we ensure that we do not get stuck again?

Prasanth: Suppose we get an order for Rs 500 crores, then that capacity is not available for any other project. We will have to modify guidelines and inform customers.

Rakesh: Sometimes, the order is officially placed a long time after the confirmation from the customer, when the price is different from the price we quoted.

Prasanth: The customer is also aware of that. As you had mentioned we will either get a better price or identify alternate vendors! The good point is that it is an order in our back pocket – whether we choose to look at it or not, it's better than no order.

Rakesh: I agree, there are a million permutations and combinations, and we are always there to work together with you guys as one team.



The China Factor

Twenty or 30 years back, doing business in China was beset with several problems – starting with the need to decipher multiple dialects. Today, the connectedness offered by technology has opened up new vistas of opportunities. The seed sown two decades back now gives L&T Valves a boost in terms of performance and profitability.



T. Chandrasekaran
AGM – SCM China

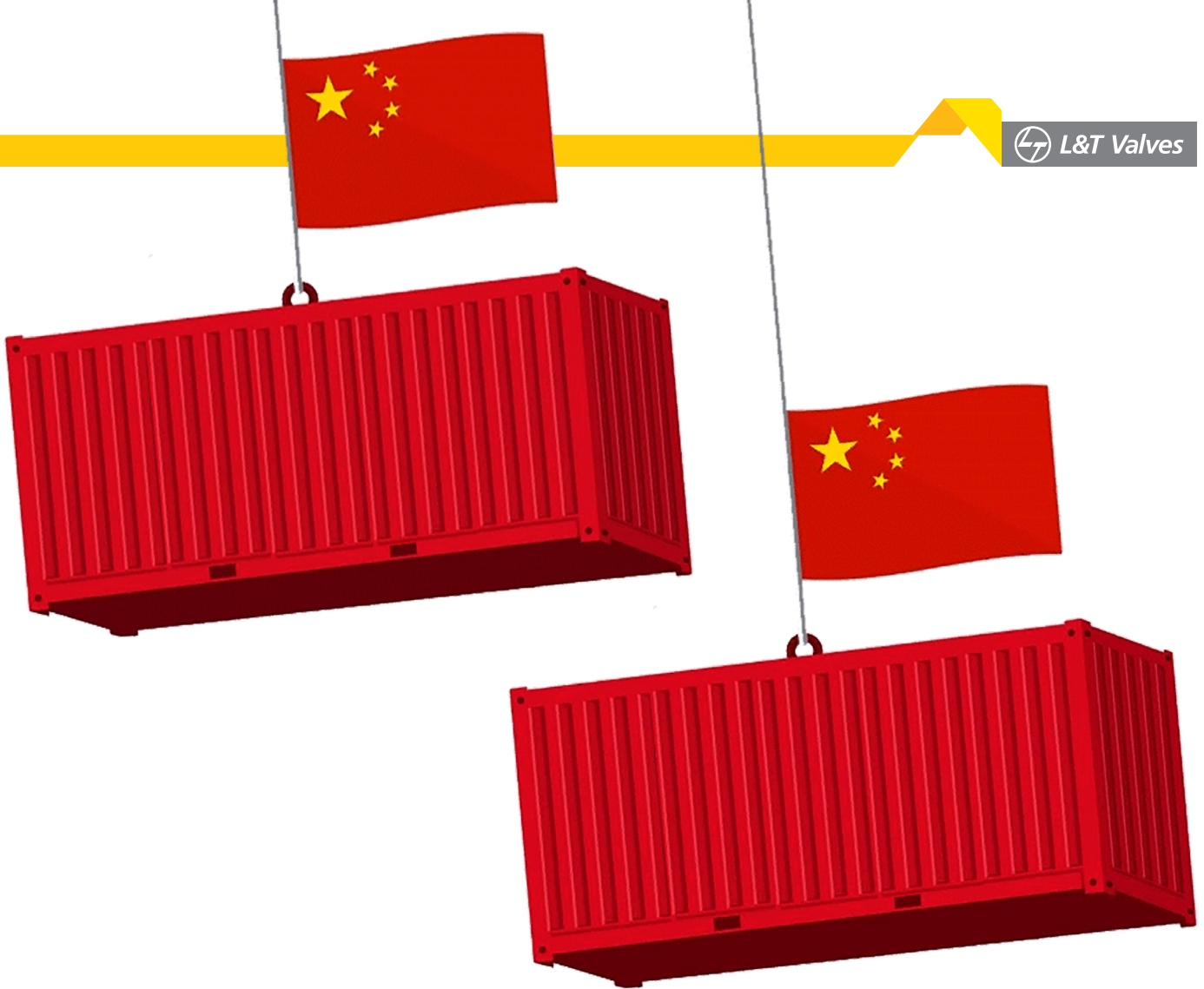
Doing business in China is challenging in its own right, as has been agreed upon by industry leaders. Our own apprehensions of a strange land, language, food and culture plays a part in this. Today, we are blessed with the facilities of Internet, mobile smartphones, and the ability to get information at our fingertips. On the other hand, 20 or

30 years back, supply chain managers had to wade through uncharted waters, with very few English-speaking translators who could help them get their work completed. Just like in India, Chinese speak different dialects across different provinces. It was thus a nightmare for business professionals to conduct business there. The advent of Mandarin as the national language in China has helped not only its own citizens in terms of communication, but has also boosted cross-border trade. Business managers need not scramble for translators for different dialects anymore.

China, over the last 20 years, have slowly evolved into a strong manufacturing base. It has become the world's manufacturing hub, primarily because of the cheap labour and the exceptional speed in the time taken to get to market. This has enabled China

to attract large foreign investments. All leading names across industries have set up their manufacturing operations and, in some cases, established their headquarters in China as well. Suppliers from China predominantly rely on the economies of scale to give a competitive price, and that puts them (with the added advantage of their speed) in a unique position in the supply chain market.

The valve industry in China has developed rapidly, and the country has become the largest valve manufacturer in the globe. Currently, about 50% of global valve parts are purchased from China. There are over 3,000 valve manufacturing enterprises in China currently, with an annual output of around 10 million tonnes. This is why China is number one in the world in valve manufacturing. Furthermore, with a robust, fully developed downstream



supply chain in the valves industry, China is a natural choice for global valve manufacturers who are seeking to source both finished goods and components.

L&T Valves has strategically scaled up its sourcing operations from China over the last 16 years. The company has leveraged on China's speed and scale to meet and exceed customer demands. L&T Valves has invested heavily in developing suppliers that meet the stringent quality requirements, through supplier due diligence, quality audits and FAT (factory acceptance test). This has helped L&T Valves to gain significant market share in the oil & gas, power, wastewater and petrochemicals industries (to name a few).

L&T Valves has invested time and effort in working with suppliers to

ensure that the required quality set by the industry and the special quality requirements of the oil & gas industries are met. We also depute our engineers to the supplier site to work with supplier quality engineers to monitor the processes and inspect and dispatch the components on time. If required, we depute third-party inspectors also.

L&T Valves China caters to several functions in the organisation. It gives unrelenting support to get firm prices with longer validity in volatile markets, so as to enable the project teams to win bids. We have spearheaded many vendor development programs to help us to leverage on product mix, delivery and quality. The team's efforts has given the sales team and business planners the benefit of flexibility, so as to attract customers with speed in delivery and create a unique value

proposition each and every time, thereby raising the bar of customer satisfaction.

Building a good, longstanding relationship with the Chinese supply partner was the toughest challenge faced by any supply chain professional in China. L&T Valves has successfully nurtured and developed several such business relationships through a sincere, honest and win-win approach. This has helped L&T Valves to sustain its business model in China for over a decade. The L&T Valves leadership's vision in seeing this great opportunity 20 years ago has helped L&T Valves to capitalise on all the advantages that China's valve industry has to offer – and, thereby, helped L&T Valves to grow by leaps and bounds.



Green is the New Black

A green supply chain places added emphasis on minimising resource consumption, creating zero or less wastage from processes and products, better energy management, and zero or less emissions in the entire cycle of supply chain activities.



*Pugazhendi
Senior Engineer – PLED*

Sustainability refers to the act or process of meeting our own needs without compromising the ability of future generations to meet their needs. Doing so requires a harmonious coming together of the environment, society and governing structures.

A ‘green supply chain’ integrates products or process that creates zero or low pollution, waste generation and emissions, uses best natural resource management and supports mitigation of climate change.

The Pressing Need to Go Green

Global warming has caused an increase of the global surface temperature by about 1.5°C to 2°C, leading to climate change. The major contributor towards the global warming is human activity – and, if continued at the same pace, it could affect the life on the planet.

The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), managed by the World Meteorological Organization (WMO) and United Nations Environment Program (UNEP), states that the global warming thresholds of 1.5°C to 2.0°C will be exceeded during the 21st century unless there is a drastic reduction in emissions of carbon dioxide and other greenhouse gases in the coming years. Our current efforts are not sufficient to mitigate the effects of climate change.

We were warned about the effects of climate change a few decades back. Now, we have started to face the

consequences of climate change – seen as frequent and severe events, ranging from flash floods, droughts, heat waves, wildfires, precipitation and tropical cyclones. It is critical that immediate, sustained and rapid action be taken to reduce greenhouse gas emissions in order to limit global warming. Failure to act now is likely to cause a rise of 2°C between 2040 and 2060, leading to more frequent cataclysmic events.

Currently, India is the third largest global emitter of greenhouse gases. This is due to irresponsible consumption, high pollution and poor waste management. In a recent study, the World Bank projected that India would lose 2.8% of its GDP by 2050 because of extreme weather, which would lead to a significant reduction in living standards. Also, the World Health Organization (WHO) indicated that, between 2030 and 2050, climate change is expected to cause approximately 2,50,000 additional

deaths each year from malnutrition, malaria, diarrhoea and heat stress. According to the Food and Agriculture Organization of the United Nations (FAO), climate change is causing extreme weather, droughts, flooding and other disasters, depriving millions of people around the world of a livelihood. According to Global Climate Risk Index 2021, in 2019, India was the seventh most affected country by the devastating impact of climate change globally.

As a result, talk about green supply chain is becoming increasingly common. Enhanced focus on fostering 'green business' is most relevant for business sustainability – and supply chain plays a vital role in many aspects for this. In fact, products and processes that are not aligned with the global green business requirement, especially with climate change mitigation, will no longer be considered in the market. This is the kind of pressure we are facing in markets across the globe.

Forming a Green Supply Chain

A supply chain includes the activities required by the organisation to deliver goods or services to the consumer. A green supply chain places added emphasis on minimising resource consumption, creating zero or less wastage from processes and products, better energy management, and zero or less emissions in the entire cycle of supply chain activities. It also holds the entire company responsible for the above, irrespective of the person handling the services for a product.

We play a dual role in this: One, as a vendor for our customers and the other as a customer for our vendors. As a vendor, we must stand by our commitment to creating a green supply chain; as a customer, we must demand the same from our all suppliers. To date, some of the decisions we made towards green procurement include recycled raw materials, star-rated energy appliances, energy efficient motors, paperless procurement

process, and selection of sustainable packing materials. The materials used in packing is an opportunity to reduce material wastage as it will be greatly beneficial and save millions of trees annually.

There are three areas of work, namely Scope-1, Scope-2 and Scope-3. Currently, government and private organisations are targeting Scope-1 emissions, which accounts for fossil fuels burnt within a campus. Global communities have started to focus on Scope-2 as well, which is about the electrical energy purchased from outside. Scope-3 emissions focus on the emission from raw material processing till dispatch, including all activities performed within and outside the organisation. The organization's entire upstream and downstream activities are covered up within this, including employees' transportation, product transportation and emissions from suppliers' operations with respect to these products and services.

To achieve Scope-3, we have to start by measuring emissions and spotting the main sources. Next, we need to identify the potential reduction areas and plan for implementation. Finally, we need to report the emissions as validated by a third-party agency.

The three-pronged 'Reuse, Reduce, Recycle' process plays a vital role in sustainable supply chain management. When we start to reuse materials, it reduces the demand and pressure on supply chain. We need to look for opportunities to get products and services made from recycled materials, wherever possible. Lean supply chain practices are one of the focus areas to reduce the eight types of waste, thus increasing the supply chain efficiency. Procuring the right quantity with the right quality at the right time is key to achieving the organisation's sustainability goals. Another point is to have a centralised policy on sustainable supply chain with decentralised execution and administration.

Supplier goals should align with the business sustainability goals, so as to achieve ISO certifications, reduce emissions, reduce waste, restrict single-use plastic and use packing materials as per the local government guidelines.

Risk assessment and mitigation is important for the supply chain function, as change is the only constant in the market where the various stakeholders keep changing from time to time. For instance, mitigation shall be planned for the risk arising through the demand on fuel, water shortage and various stringent pollution control requirements.

Creating awareness and providing necessary training on green decision-making is needed to keep up the momentum. It is time to set sustainable supply chain as a business strategy, as it is also a key concern for all our stakeholders. The initial step is to measure the current level of sustainability in our supply chain. We will be trusted by our customers once we start to measure our compliance, since it will reflect on our commitment towards achieving our ambitious targets.

Climate change is one of the most significant development challenges facing humanity. We must aim to strengthen our response to the threat of climate change by setting targets on the reduction of greenhouse gases including short-term, medium-term and long-term goals and ultimately achieve a 'Carbon Neutral' status. As per the AR6, the only feasible route to control global warming is immediate 'Net Zero' commitment. At L&T Valves, we are committed to a 'Net Zero' future and our green supply chain will pay a huge role in the journey.

Revolutionising the Supply Chain

L&T, with its deep knowledge and capabilities in procurement, logistics, financing and IT solutions has leveraged these capabilities and has developed an Integrated B2B e-commerce platform – L&T SuFin, which is a Supply Chain & Finance ecosystem for SMEs and corporates.



*Bhadresh Pathak
Business Head – L&T SuFin*

Technology has redefined the way businesses are set up and scaled up today. The traditional brick and mortar channel of sales and distribution that facilitated product discovery is being challenged by the digital ways of doing business through digital store fronts and e-commerce platforms.

E-commerce is a new tech-enabled way of doing trade in the current world. Online purchase has impacted the way the supply chains are organised and trade fulfillment is done.

The digital means of trade through an e-commerce platform not only makes the product discovery more efficient but also creates a pricing advantage

due to the multiplicity of options that it can create for the customers. In addition to this, a customer centric buying experience can be created on a large scale by using the technology. The instant delivery of information through the Internet elicits immediate response and action from the customer which enables a very speedy, cost-efficient and effective way of making a trade decision sitting in one's own office or home.

People are already familiar with many big names such as Amazon or eBay, that are goliaths of the B2C e-commerce business. B2C e-commerce has now been very well accepted and adapted by consumers across the globe. The developments in the B2C e-commerce business and the scale up it witnessed during the Covid scenario has played a huge role in creating a similar belief for the B2B e-commerce business as a huge potential opportunity.

In India, the B2C market is well established but the B2B e-commerce is at an evolutionary stage. The total value of goods traded (GMV) through B2B e-commerce in India is likely to take off from the current level of \$15 billion to \$120 billion in a period of

next seven years from now i.e., from a current level of 0.3 times of the total value of goods traded through B2C e-commerce to 1.5 times the total value of goods traded through B2C e-commerce. Currently the B2B e-commerce GMV in China is \$3000 billion and in USA it is \$1100 billion which gives an idea of the potential that India can aspire for in the coming years. Many companies in India are planning a foray into B2B e-commerce space. However, in the current scenario, unlike B2C platforms, the B2B proposition has been often limited to selective functionalities like only product discovery or lead generation, or only stocking and supplying goods to large corporates by creating a storage facility near their factory or project site. So far, no platform in India has been able to offer a holistic and integrated solution which attends to the complete spectrum of the supply chain requirements and functions.

L&T SuFin – An Integrated solution for Business Growth

Over the last few years, L&T has slowly enhanced its technology footprint and is charting a course in the recent years that will see its technology portfolio increase its contribution vis-a-vis its traditional businesses. L&T, with its

L&T-SUFIN

L&T-SuFin is an online B2B buying/ selling portal that provides access to industrial products and related services such as logistics and finance.

The unique value that SuFin delivers is 'Access' – to products, markets (for sellers), business communities, finance and logistics – all on a single, integrated technology platform. Allowing business to grow and reach their potential. The letters of the brand name are a combination of 'Supply Chain' and 'Finance', but the logo takes this further and expresses a dynamic and action-oriented vibe.

The SuFin logo symbolises growth. The strong yet fluid arrow in the letter 'F' in the logo is a forward-looking expression of 'movement', not only of goods and services but new opportunities as well. The italicised style of the font is representative of forward movement.

The colours Blue & Orange represent freshness and innovation. Blue is also a colour that builds on the Parent Brand's (L&T's) legacy of engineering, innovation, and high technology.

deep knowledge and capabilities in handling high volume of annual procurement for over eight decades, Logistics, Financing and IT solutions has leveraged these capabilities and has developed an Integrated B2B e-commerce platform – L&T SuFin, which is a Supply Chain & Finance ecosystem for SMEs and corporates.

- The B2B industrial ecosystem will provide a platform for SME buyers and sellers (mainly focused on construction and industrial products and services) to connect in an efficient manner, thereby enabling sellers to expand their sales reach, and for buyers to find the optimal products and services at optimal cost and quality.
- There are services of doing online transactions for trading of products and enabling services with payment and settlement mechanism.
- The logistics partners on the platform would enable efficient

delivery and fulfilment in a timely, cost-effective manner with strong service-level agreement compliance.

- The banks and other financing entities will provide attractive financing options to the platform users, thereby addressing majority of the procurement needs of the SME buyer end-to-end.

L&T Valves has played a pivotal role in executing the closed user group testing of the L&T SuFin platform. Their contribution has helped L&T SuFin to improve the user experience on the platform like the betterment of the RFQ process, product cataloguing, etc., which could have happened only after the commercial launch of the platform.

It is also envisaged that L&T Valves would take the advantage of the digital procurement and sales through the platform, and benefit from facilities like logistics of small items and financing of vendors.

The platform will bring choice and convenience in a single, completely reliable manner, and the customer will be able to build a stronger brand for their business, capitalise on new opportunities of scaling up their sales through the e-commerce channel, and can will be able to leverage the strength of the platform to get wider market access and better choice of business partners.

The recent turmoil caused by the pandemic has exposed various vulnerabilities in the traditional supply chain functions and leaders across the globe are finding different ways to make their businesses work better. So, it is the time to adopt to the new vision and technologies which are suitable to the new era, and one should leverage the capabilities that reside around the globe and work upon improving resilience and reduce the risks of disruptions.

Effective Supplier ESR²

Through Evaluation, Selection, Rationalization and Relationship-Building, L&T Valves has been able to form and maintain strong ties with our suppliers – a key factor in helping us keep up our commitments to customers and in staying ahead of the competition.



Marimuthu N
Assistant Manager – QA

The evaluation and selection of suppliers is of paramount importance in the current scenario of global purchasing. It helps businesses in terms of structuring the supplier base and enhancing the efficiency of the supply chain. In particular, organisations in the manufacturing sector need to have a supplier selection and evaluation model in place in order to gain maximum value from their suppliers. Supplier evaluations help the company to achieve the following:

- Boost supplier performance
- Utilise supplier base
- Improve performance visibility
- Mitigate risks
- Identify hidden cost drivers

Supplier selection is the process by which firms identify, evaluate and form contracts with suppliers. The main objective of the supplier selection process is to reduce purchase risk, maximise overall value to the purchaser, and develop closeness and long-term relationships between buyers and suppliers.

The five most important factors to consider when selecting a supplier for an organisation are:

- Alignment of goals
- Product quality
- Supplier experience
- Supplier value addition
- Supplier flexibility

L&T Valves has its own structured way of supplier evaluation, selection and re-evaluation processes, which are well recognised by various certification agencies and customers around the world. When it comes to valves, castings from foundries make up a major portion of the raw material and contribute to 60% to 70% of the price. Therefore, foundries are our prime supplier, and we consider them as 'business partners'. When it comes to the valve industry, the evaluation, selection and re-evaluation processes for foundries has been very stringent – after all, if the castings fail, the valves fail.

The foundry re-evaluation frequency is based on the foundry risk, quality and performance. The foundry risk, quality and performance are rated as 'low', 'moderate' or 'high'. Based on the risk, the re-evaluation frequency is determined for the foundries. For low-risk foundries the frequency is usually once a year, as the risk increases the frequency increases as well.

As a part of the strategic procurement plan, the Quality and Supply Chain Management (SCM) departments work together to ensure all the castings meet the required standards. This helps

to improve On Time Delivery (OTD) and avoid additional development costs.

In order to maintain good relationships with our suppliers, the Quality and SCM departments have face-to-face meetings with the suppliers every year to review the former's performance and to share customers' expectations. These one-day meetings help in identifying and implementing changes in areas where improvements are needed. During the pandemic and lockdown, these meetings were conducted online, and over 20 foundries were covered in the process. This approach was well received by our suppliers.

These meetings usually cover the current approved material grades, previous years' quality performances, casting failures, specifications required by our major clients and casting control measures addressed in our TDC. In order to meet the standards set by L&T Valves, we ensure that the suppliers meet the material grade requirements, even if it means a mandatory facility upgrade. Finally, we conclude the session with the 'Voice of the Suppliers', where we record feedback from our suppliers to try and improve on those points. In addition, we have awards for our suppliers, based on performance in various categories – this helps to keep them motivated and improves our relationship with them.

Through this model of supplier selection and evaluation, L&T Valves has been able to stay ahead of the competition in terms of customer satisfaction and supplier relations.

Innovation in Logistics

L&T Valves is working on two apps that will help with logistics planning and real time shipment tracking to optimise time, effort and cost. We look at the scope of the apps and their expected benefits.



Rinoj James
DGM – Stores

We are seeing a lot of digital transformation in the logistics domain across the world. These new technologies provide us an opportunity to optimize processes more efficiently and economically. The major problems faced by logistics are the following:

Delivery Time: To be competitive, it is necessary that companies set delivery deadlines with accuracy – and meet them. This has become a key criteria in terms of assessment for the customer.

Speed: Shipments need to reach their destination in the shortest time possible, and without adding to the costs. This can be achieved by optimising the delivery routes and analysing the data in real time to assess the most significant routes.

Hours of Service: The collection period must remain flexible. However, at the same time, it is necessary to have control and track the shipment until it is delivered. In other words, all the parties involved must be coordinated.

Logistics Planning Portal

Currently, the logistics team receives pick-up and delivery transportation requests via email. The information given in the email is decoded and transferred to an excel sheet. The vehicle requests are aggregated in the excel sheet every day. Using inputs of weight, size, destination, activity and so on, the type of vehicle and transporter is chosen.

The above process is done manually and is prone to errors like misinterpretation of information, manual entry error, not finding the optimal vehicle plan, and others.

At L&T Valves, we are developing a web portal where the requests will be logged into the 'Request for Logistics' page and the information will be shown in the logistics planning screen. The logistics team will be able to club requests together and run an optimisation algorithm that will take into consideration the category (pick-up / delivery), date, location and vendor and give a recommendation for the vehicle type, as well as the set of locations that can be clubbed together in a single trip. This would give an optimal output for the logistics requests. After this, the logistics planner can choose whether to accept or reject the given solution. If any changes are required, the logistics planner can change the combinations of requests and run the optimisation algorithm again.

Once optimisation is completed, the details are forwarded to the

transporter for assignment of vehicle. The transporter can input the vehicle details, pick-up date and time, cancellation request, etc. After the delivery or pick-up has been completed, the logistic request details can be updated. The dashboard and reports provision helps in viewing the utilization based on volume and tonnage.

Real-time Shipment Tracking

Currently, several man-hours are spent in tracking of the real-time pick-up or delivery of our goods, making phone calls to ensure the right material is collected, reporting on time and so on.

To address this, an app is being developed wherein all the required information will be captured in real time. The required pick-up / delivery plan will be uploaded with all relevant inputs – namely, vendor name, time of pick-up / delivery and so on. The alert message with a unique One Time Password (OTP) will be shared to the respective vendors so that they can do the required pre-arrangement. The pick-up will be confirmed once the OTP is shared with the drivers. The team at L&T Valves will be informed earlier of the right material being picked up or delivered.

With these upcoming technologies, L&T Valves aims to improve the delivery times while reducing costs. All this will translate to better customer satisfaction as well.

Value Co-creation is Our Success Mantra

For Rangaswamy Krishnakumar, a career in engineering and sales were decided by his family ties. His father, who was an engineer at Enfield India, drew him towards engineering and manufacturing, "Even when many of my batchmates went into the IT sector, especially after Y2K, I continued in the manufacturing sector", Krishnakumar recalls. And the influence of his maternal uncle, who was a sales professional, made him choose Sales, "His charisma and the way he carried himself fascinated me". Today Krishnakumar heads Domestic Sales at L&T Valves, managing the sale of engineered products.



In 1997 I started as a Sales Engineer looking after an industry segment in Chennai, and gradually added AP, Karnataka and Kerala to my territory. In 2002, I got the opportunity to head the Eastern region and a couple of years later, I came back to Chennai to handle a pan-India responsibility.

USPs of L&T Valves

Of the many features that I cherish about this organization, the best is the freedom to take decisions. When market pressures compel us to take decisions – often without the luxury of discussing with our boss/ team – it provides us the opportunity to fast-track our capabilities to

evaluate alternatives, to assume ownership and also, face the consequences of our decisions.

Another strength I have absolute faith in is the technical prowess of L&T Valves. Mr MC Pillai, head of specialty valves division when I joined, would say, "I don't mind losing orders on price, delivery, commercial terms, etc., but we must never lose orders on technical issues. If L&T Valves can't do it, chances are, no one else can." We believe in offering our customers solutions that exceed their expectations – and, to our credit, we have a long list of new products that defined the industry. Technology, quality,

range, brand equity and reach are our strengths. We offer a wide portfolio of products that no other Indian valve manufacturer can match. Also, in an industry that is so fragmented, where most of our competitors operate in geographical or product silos, you will find L&T Valves in all industrial product segments, across the country.

The Reliance Experience

Reliance Industries Limited (RIL) is very close to my heart. Apart from my bosses, they were the ones who challenged and motivated me the most! Soon after I moved to Chennai, I became the key account manager for RIL when they had just started

the work on their Jamnagar Export Refining Process (JERP). While we did not have a single valve of ours installed in their first plant, for JERP we supplied over 80,000 valves over the next two years. Later, when RIL came up with J3 petrochemical complex, I handled that project as well and sold more than 5 lakh valves over four years. It is a matter of great pride that we became the single largest supplier of on-off valves to Jamnagar.

Working with Reliance gave me a lot of learning of how to strategise, how to plan our portfolio and maximise our business. The key account manager had to play the balancing act between RIL and L&T Valves and ensure that the decisions are not penny wise and pound foolish – for both parties. This approach helped us move from a ‘valve manufacturer/ supplier’ to a ‘partner’, and we worked extensively with RIL to co-create cutting-edge flow-control solutions.

The Key Challenges

Purely from a salesman point of view, you enjoy best when you win against an equal competitor! In India, we are the biggest, and growing, and there is no direct competition for us in the market right now. I would like to say that L&T Valves is setting the standards for the industry.

Having said that, we see that the industry growth is accelerating; a lot of our competitors are catching up. The gap between us and our nearest competitors will reduce over a period of time. However, given the size of the market and its fragmented nature, I believe, there is space for everyone who delivers quality and performance.

We are committed to quality, cost and delivery and we share a 60-year-old bond with our customers. Even in cases where our customers have

RKR



Mr. Ranganth Krishnakumar was born on October 30, 1971, to Mrs. Revathy and Mr. S. Ranganth. Krishnakumar's father was working with Enfield India and his mother, a housewife. He has one younger brother, Sriram, who is with ICICI and a younger sister, Kirthika, who is doing MBA.

Krishnakumar graduated in Mechanical Engineering from Sathyabhama Engineering College,

Chennai in 1993 and started his career with DTA Yellow Pages, Chennai as a Sales Executive. After a few months there he moved to Fluid Line Systems, the KSB dealer in Chennai.

For two years from March '94, Krishnakumar worked with Rambol, Chennai looking after sales of automobile components and in September '96 he joined Greaves, Chennai as a Sales Engineer.

R. Krishnakumar (RKR) became an

L&T-ite on February 12, 1997.

He joined in Speciality Valves Division, Chennai and was soon transferred to SVS Section, Chennai.

Notable achievements during his stint include the Rs. 3 crore order from Lanco Kondapalli Power Project and the successful execution of the Rs. 3 crore order from TPL, a/c NLC.

It was during the SVS-days that he picked up his nickname, Junior. R. Krishnakumar's boss was another R. Krishnakumar, so the elder Krishnakumar became 'Senior' and RKR, 'Junior'.

In 2002, RKR took charge as Section Head, ERO and played a role in increasing the business by 70% in two years. During his tenure as SH, ERO picked up its largest ever order - a Rs. 5.5 crore order from GRSE, Kolkata.

In 2004, Krishnakumar was transferred to Valves Business Unit, Chennai to head the operations of the EPC and Stockists sector.

Krishnakumar is married to Girija. The couple has one daughter, four-year old Sahana.

From Inflow-Outflow, Jan-March 2005

tried international vendors, they have eventually come back to us.

Impact of Technology

For one, the size of the valve itself has gone up. When I joined this organisation in 1997, the 24" valve was the biggest. I remember travelling to the factory to take a look at a 24" Gate Valve. Today, we are seeing refineries having hundreds and thousands of 24" valves and we have also graduated to 72" and 100" valves. Today, enquiries for 40" and above have become very common. My inference is that the industry is growing. The organisations are getting bigger, and they are trying to maximise their efficiencies. Accordingly, the sub-systems are also evolving to meet the requirements. We see a definite trend towards automation. That is going to be a sizeable business and about 20% now. I would not be surprised if the share of actuated valves becomes 50% for some industries pretty soon. An interesting development is that clean energy is going to catch up in India.

We have already made a mark for clean energy in our international businesses. 'Smart' valves are the future – valves that diagnose and communicate using IoT capabilities.

Covid Pandemic and Aftermath

In the last two years, we were in touch with customers only over phone. This did not mean we lost the 'customer touch'. The relationships that we forged, the trust we built, ensured that if a customer thinks of valves, they call us right away.

Sales has always been about the big picture at L&T Valves. Majority of our success is basically because of how we understand the customer's problem and how our solution adds value to the customers. 'Value Co-creation' has been our mantra, as well as my personal mantra, and has been the driver of our success and growth. That will not change, no matter what.

Long Service Awards

Congratulations to All Awardees

30



D Chandrasekaran
Manager – Commercial

30



Soundarrajan R
Manager – Admin



Banu Prathap P
Manager – Manufacturing, LSV



T Karthikeyan
Manager – Reliance Key Account



Manigandan M
Assistant Manager – Manufacturing, FSGGC



Jeyasankar P
Manager – TMBV



Sridhar S
Executive - Engineering, GGC



Subramanian M
Assistant Manager - Engineering, GGC



Murugavel N
Assistant Manager – Manufacturing, TMBV



S Ramkumar
Assistant Manager, TMBV

The Winning Move

“Chess is the gymnasium of the mind.” So said Blaise Pascal. The 64 (yes!) people who participated in the chess tournament would agree. Rounds of matching wits and moves, and good old camaraderie were all part of the game. We extend our hearty congratulations to the winners and our best wishes to all participants



Winner
Ashwin J



1st Runner-up
Viswanath K



2nd Runner-up
Abhishek V

Kancheepuram Premier Leagues

It is the game that matters, not whether we win or lose – this was the reigning spirit at our Kancheepuram plant all through the sporting fest. With over 150 participants for the cricket tournament and 32 participants for the badminton tournament, the spirit of healthy competition was the order of the day. We thank all participants for their enthusiasm and good cheer, and extend our heartiest congratulations to the winners of both tournaments.



CRICKET

The Winning Team

Gokul M
Gopinath D
Jagannathan M
Karthick T
Palani C
Prakash T
Praveen Kumar S
Rajesh H
Sankarraj S
Saravanan E
Selva Kumar C
Silambarasan S
Subash I
Thangaraj K
Vasanth K

BADMINTON



Winners
Antony Jayaraj J and
Bharath Kumar K Badari



1st Runners-up
Balaji MG and Umapathi A



2nd Runners-up
Manikandan S and Gopi J

Wedding Bells!



Congratulations to Ganeshperumal S and Venkateshwari, who tied the knot on 8th September 2021.

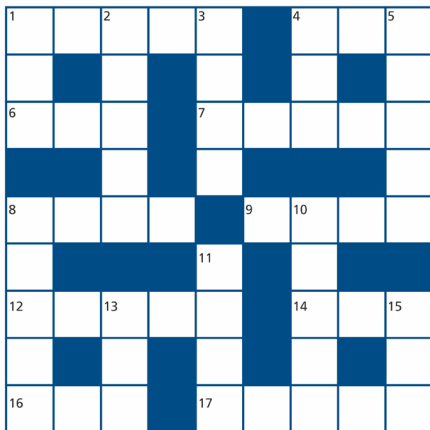


Congratulations to Thangapandi N and Shanmugapriya S, who tied the knot on 9th September 2021.

Val-kid



Congratulation to Dharanikumar M (Son of Manikandan S) for participating in "FIT INDIA- FREEDOM RUN 2.0" 5-km run held on 11th September 2021 at Changalpattu



V-connect Crossword

ACROSS

- 1. This valve means the world to us (5)
- 4. Too much pressure (3)
- 6. L&T group lays great importance to ____ (1,1,1)
- 7. L&T Valves completes ____ years in 2021 (5)
- 8. Too much disco, and the ____ slips (4)
- 9. This valve is having a good time (4)
- 12. This valve isn't coming back (5)
- 14. Check Valve cover is also called ____ (3)
- 16. Not completely knocked down (1,1,1)
- 17. Major refinery in KSA (5)

DOWN

- 1. The founders of L&T hail from a country with consistent high scores in ____ (1,1,1)
- 2. These are used for pre-heating welding electrodes (5)
- 3. Our first Indian distributor was from this region (4)
- 4. Valves for cold ____ applications have bonnet extensions (3)
- 5. L&T Valves house colour resembles this blue (5)
- 8. Where the submarines dock (5)
- 10. Indian Army's strategic communication network (5)
- 11. A four-letter word commonly expressed in two-letters (4)
- 13. In ____-of-line installations, flow should be under the disc for Globe Valves (3)
- 15. An important customer category for L&T Valves (1,1,1)

Send your answers to v-connect@Lntvalves.com for a special prize!

V-connect Quiz WINNER

We thank you for the overwhelming response.

The answers are:

- 1. Skunk Works
- 2. Xerox
- 3. Kodak
- 4. Andy Grove
- 5. DuPont

The winner is **Arunkumar S**, Supply Chain Management, Kancheepuram.

Congrats!





Overturning Murphy's Law

What can go wrong will go wrong. If we figure out the 'why' behind the 'what' of the 'wrong', can we realign our processes and make them error-proof?



Vijayarangan M
QA, KPM

Root Cause Analysis is a useful process for understanding and solving a problem in a systematic way. It is a short-term group activity that help us find out bottlenecks or negative events in manufacturing. It analyses the complex systems around those problems, and identify key points of failure. Finally, it determines solutions to address those key points or root causes.

Root Cause Analysis helps people answer the primary question of 'why' the problem occurred in the first place. It seeks to identify the origin of a problem by using a specific set of steps, along with associated tools such as brainstorming, cause-and-effect diagram, why-why analysis, control charts, flow charts, pareto charts, histogram and so on. This is done so that we can:

- Determine what happened
- Determine why it happened
- Determine where it happened
- Determine how big the problem is

Then, we can take direct, clear actions to reduce the likelihood of such an event happening again.

Root Cause Analysis action in one area triggers an action in another, and another, and so on. By tracing back the line of these actions, we can discover where the 'symptoms' started and how it grew into the problem on hand.

Upon conducting a Root Cause Analysis, we usually find three basic types of causes:

1. **Physical:** Tangible, material items that have failed in some way (for example, a crack on a valve body casting).
2. **Human:** A person / people did something wrong OR did not do something that was needed. Human causes typically lead to physical causes (for example, no methoding control while valve casting pouring, which could lead to valve casting crack).
3. **Organisational:** A system, process or policy that people use to make decisions or do their work, which is faulty (for example, sample or prototype not established, and process control / detection techniques not being addressed in their SOP).

Root Cause Analysis looks at all three types of causes and maps them to 6 Ms:

- 1) **Man:** Manual and mind work
- 2) **Machine:** Technology

- 3) **Method:** Process
- 4) **Material:** Materials, consumables
- 5) **Measurement:** Inspection
- 6) **Mother Nature:** Environment

Using the above-mentioned '6Ms' logic, we can investigate the patterns of negative effects, find hidden flaws in the system by brainstorming, prioritisation and/or validation, and discover the specific action(s) that contributed to the problem.

L&T Valves uses the Root Cause Analysis technique in 6-step logic and 8-definition logic for our customers. The reported quality issues and all internal product and system non-compliance issues and actions are recorded in a systematic way through proper documents with effectiveness verification.

Moreover, the L&T Valves quality team is training and developing the suppliers associated with valves raw material to avoid recurrence of quality issues by using the Root Cause Analysis technique.

L&T Valves team has adopted Root Cause Analysis techniques in an effective way for addressing all quality issues.

Cladded Valves

Many critical applications in the oil & gas industry require Corrosion-Resistant Alloy Valves. Milton Danny, Head – Product Management presents Cladded Valves as a cost-effective alternative.

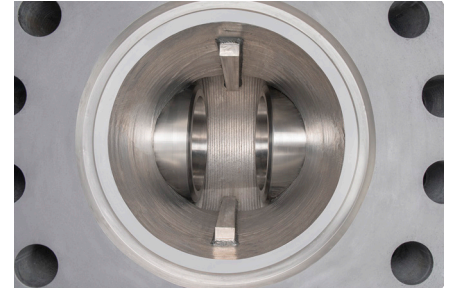
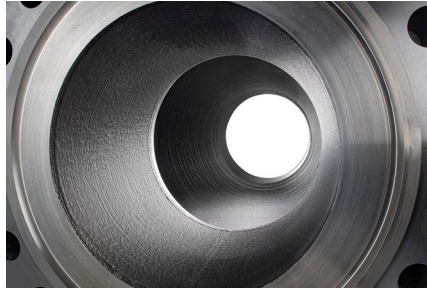


Milton Danny
Head – Product Management

The oil & gas industry faces challenges in exploration and production with many new fields offering harsh service conditions. The line fluids are highly corrosive and include crude with high H₂S content and sea water. The applications require valves in corrosion-resistant alloys (CRA) capable of handling Stress Cracking Corrosion, Hydrogen Embrittlement, Intra-Granular Corrosion and Sour Gas Cracking.

This has resulted in process engineers specifying valves in CRA ranging from Super Austenitic SS such as UNS S31254 (A351 Gr.CK3MCuN) which contain at least 6% Molybdenum and PREN of 40% to Super Duplex SS such as UNS S32750/ UNS S32760 (ASTM A995 Gr 5A/6A) and Nickel Alloys such as UNS N08825 and UNS N06625 (ASTM A494 Gr.Cu5MCu/ CW6MC). The factors that play a role in the selection of these grades are the Fluid Composition, Environmental Conditions, Expected Service Period, Probability and Cost of failure.

In view of the increasing share of corrosion-resistant materials inflating project costs, industry experts have developed overlay of CRA materials on



a component of standard metallurgy as an effective alternative to the use of a solid CRA component. The cladding process involves the deposition of a thin layer of CRA material such as Stainless Steel or Inconel on a Carbon Steel base creating a composite structure that achieves the twin objectives of low cost and higher corrosion resistance. Global oil majors such as ADNOC, Kuwait Oil Company (KOC), Saudi Aramco, Shell, etc, have embraced the concept of cladding valves, pipes and fittings for their projects.

The process of cladding creates a perfect fusion between two layers without any dilution of the overlay material. A minimum thickness of 3.0 mm, achieved in at least two layers of overlay, is targeted. The industry uses various processes to achieve cladding, however, considering the durability required across a range of high pressures and temperatures, weld deposition has emerged as the preferred mode of cladding for valves.

Automatic welding machines are used to maintain consistency of the beads across the entire overlay area and to avoid cracking. The pre-welding conditions of the base material, the variables to be maintained during

welding as well as the chemical and physical condition of the final welded surface are specified by the end-users. Stringent checks and in-process inspections guarantee the integrity of welds and ensure that the corrosive line fluid does not come in contact with the base material.

Cladded Valves from L&T Valves

For Valves, cladding is applied on the flow bore areas and flanged ends of Gate Valves, Check Valves, Trunnion-mounted Ball Valves and Butterfly Valves. We use Automatic Gas Tungsten Arc Welding (GTAW) machines for consistent overlay. Pre-machining is done to ensure uniform weld deposition, and after welding, post-machining is carried out, if required. We have successfully established the requisite welding procedure qualifications for various base materials and overlay alloys.

L&T Valves has supplied cladded valves to various projects of KOC, Saudi Aramco and Takreer. Cladded Valves offer immense economic benefit to our customers, and we are equipped to offer cladded valves in sizes up to 56" and pressure classes up to 2500.

Music to Our Ears

At L&T Valves, we believe in walking that extra mile, be it in providing the right flow-control solutions, timely aftermarket support or bringing out a world-class newsletter – and the words of appreciation from our customers and well-wishers make it all worth the while.

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Executive Vice President & Head
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August 4, 2021

Dear Kalyan,

It was wonderful to receive your note, along with a copy of V-connect, and thank you very much for the same.

I very much appreciate the purpose with which L&T Valves is bringing out this employee magazine, V-connect, as evident from the very title of the magazine, which has been aptly chosen.

No doubt, communication plays a major role in demonstrating team spirit. Employees will definitely get motivated when their ideas, strengths, achievements etc., get publicity through our in-house magazines.

My compliments and best wishes to you and the Editorial Committee of V-connect on this happy occasion. I am sure, with the motto of 'One Team – One Dream', L&T Valves will largely benefit through the V-connect network in the days ahead.

Warm regards,

(Arvind K. Garg)

Mr. S. Kalyanaraman
Chief Executive
L&T Valves Limited
Manapakkam
Chennai

रिफाइनरीज़ प्रभाग
Refineries Division

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
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Certification of Appreciation

This is certifying that L&T Aftermarket Team had visited IOCL Vadodara during plant shut-down in Sept 2021. Due to presence of Technical expertise and dedicated effort of L&T Team, HIPPS Preventive Maintenance jobs has been completed satisfactory.

- System - High Integrity Pressure Protection System
- AMC PO Ref - 25838713 dated 22.02.2019

L&T Aftermarket team found sincere, Hardworking, technically competent and committed toward customer satisfaction.

Special Thanks to Mr. Velmurugan, Mr. Marghub Ahmad, and Mr. Kuldeep Anand.

I wish L&T Team to all success in their future endeavour.

Thanks & Regards,

Ashwani
Senior Instrumentation Manager
Gujarat Refinery, IOCL

पंजीकृत कार्यालय: जी-9, अली यावर जंग मार्ग, बान्द्रा (पूर्व), मुम्बई, महाराष्ट्र - 400 051 (भारत)
Regd. Office : G-9, Ali Yavar Jung Marg, Bandra (East), MUMBAI, Maharashtra - 400 051 (India)
CIN - L 23201 MH 1959 GOI 011388

एन टी पी सी लिमिटेड
NTPC Limited
कुडगी / KUDGI

M/S L&T VALVES LTD
Tamilnadu

Certification of Appreciation

We would like to convey our sincere thanks to Mr. Kuldeep Anand and your service team for the services being offered to NTPC Kudgi. Due to presence of TA and dedicated effort, Valves Maintenance jobs has been completed smoothly.

Valves Type- Gate, Globe and Check Valves.
Valves size from 1" - 10" of various class rating up to #2500.
Valves Operation- Manual Isolation valves and Motor operated valves.

L&T Aftermarket team found sincere, hardworking, technically competent and committed toward customer satisfaction.

We look forward your continuous support in future.

Thanking You,

(S. Subrahmanyam)
AGM (BMD)

Kudgi Super Thermal Power Project, Kudgi (Post), Tk: Basavan Bageswadi, Dist.: BHAJAPUR, Karnataka - 586121
Registered Office: NTPC Bhawan, Core No.7, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110 003

We invite you to a display of our capabilities
in flow-control for the oil & gas industry



أديبك
ADIPEC

Hall 1, Stand 1112
ADNEC, Abu Dhabi
Date 15 - 18 November 2021

