

Benefits of Supply Chain Management in Multi Storey Building Construction

S Radhakrishnan¹, Dr K G Selvan²

¹PhD Research Scholar, PRIST University, Thanjavur 613403, Tamil Nadu, India

²Associate Dean, PRIST School of Business, PRIST University, Thanjavur 613403, Tamil Nadu, India

Abstract - Construction Industry in India is the major source for employment, next only to Agriculture, for people of all walks of life. Its contribution to National Income is also quite substantial. The demonetisation exercise of the Government had literally shaken the construction industry, in particular. The implementation of RERA - Real Estate (Regulation and Development) Act was initially opposed by builders. Later on, the benefits and transparency of this led to the whole hearted compliance of same by the builders. The increasing shift of rural population to urban areas for employment purposes, higher disposal income with people, availability of long term institutional finance, outlook of people to own an apartment for themselves, the spiralling rent costs have led to large scale construction activities, particularly in the city and outskirts of same. The healthy competition amongst various builders is only contributing to the good of the buyers. The reality today in the construction industry is that quite a large number of apartments have been completed but only a few have been sold out. This is forcing the builders to induce the purchasers in terms of “ready to occupy homes”, “No Pre EMI” “Modular Kitchen Free” “Free Furnished Furniture etc.,”.

Key Words - Technology Constraint, Supplier Co-ordination, Vendor Reputation, Logistics Planning.

Methodology

Visit to construction sites, observation and personal discussion.

Contours	Details
No. of sites visited	2
No. of floors	4 and 6
Statutory compliance	100%
Facilities offered	Covered car park, Round the clock Security, Power Back up, CCTV, GYM. Community Hall, Swimming Pool and Shopping Mall (second site)
Migrated Labour	Present in second site
Employees	70 and 100 (approx.)
Use of machinery and Safety measures	Moderate (first) and Significant (second)
Work allocation and Maintenance	Remarkable in the second site.

Open Market Procurement Vs Supply Chain Management

With the prevalence of Perfect Competition, availability of any material is not a constraint in the present scenario. The excellent road development and transport facilities ensure nothing is a shortage in any part of the country.

If there is a shortage of any item, it is only transitory and supplies are made available at the shortest possible time.

The increased number of retail outlets ensures timely and easy availability of almost all the construction materials.

Halt of work for want of materials is literally nil. The non availability of materials could be due to financial crunch at the contractor's end for payment to suppliers etc., and certainly not due to supply constraint.

Supply constraint, even due to overwhelming demand, is not an issue nowadays. The supplier base is vast and availability of comparable materials is also more.

A question would logically come up that when supply is unhindered and timely, what is the need for supply chain management.

What determines Supply Chain Management?

In a nutshell, what determines the supply chain management is the size of the project. The fact is that small sized projects always rely on locally available sources and their purchases are also in small quantities.

They feel quite comfortable at this as it is not biting their purse. Purchase is made only as and when needed.

One important thing to be noticed here is that they are not brand conscious and are prepared to use any brand of materials – simply, what they need is an input for an output. They are, of course, particular about quality. For that matter, no builder would like to make any compromise on quality of materials, as it only determines their reputation in the field.

To say so, even medium sized projects also rely on local procurement. They, of course, get volume discounts from the retailers.

It is to be noted that only the builders/contractors who work on Large Projects and also working on more than one project at a time, enter into Supply Chain Management.

Hence, it is the size of the projects and the number of projects on hand only determine the Supply Chain Management.

There are many reputed builders in Chennai (Tamil Nadu) who take up many projects at a time on various locations in the city/outskirts.

All these Large Scale Builders have excellent Supply Chain Management System and enjoy the benefits of SCM in their procurement and after sales service.

It is also relevant to ascertain and assess the barriers to SCM.

Barriers to Supply Chain Management

- **Financial Capability.** Small builders are, invariably, choked by financial difficulties. It is a common practice with small builders to stop all the work till the situation is fully grappled with. It goes on to even weeks. They normally prefer to sell only finished apartments and hence are not in a hurry or fear for time bound completion.
- **Sourcing and Fixing of Supply Chain.** As already said, there are innumerable sources of supplies in construction materials. The actual purpose of SCM is more than cost economics.

The deeper study on SCM reveals that from the traditional approach of reducing costs (from the one time bulk purchase and payment, to purchasing as and when needed but at the right time, fixing the responsibility with the Supplier – JIT), it is the up gradation of quality of supplies matching with the requirements of customers, willing to incorporate quality improvements, annual supply contract and after sales service contract etc., that largely determine the Supply Chain Management System

It is also noted that not all Suppliers are prepared to budge in to the requirement of customers. Some Suppliers are firm in their supply terms and not yielding to the fine requirements of the builder.

Technology Constraint. It is a fact that even for large scale suppliers, their concern is to sell more and get more profits. Their concentration is for broad based marketing of their supplies.

They prefer to spend more on marketing than on R&D. Since the demand for construction materials is on the rise now (even with more suppliers in the field), their preference is to tap the market by supplying more to large number of customers (builders) thereby accumulating their profits.

Since profit motto is the prime principle of business, no supplier can be blamed for this.

Suppliers' Perception. Suppliers also have their own justification. By broad basing their marketing, they are able to penetrate deeper in to the segment and acquire vast business opportunities. The higher production gives them the benefit of capacity utilisation and cost reduction.

They enjoy the twin benefits of cost reduction in production and also accumulation of vast profits by larger sales. The Economies of Scale pushes them to concentrate only on this aspect, forcing them to lie low on Research and Development in compliance with customers' requirements.

Issue of Reputation

Small suppliers, however quality conscious and committed they are, are not in the fore front of reputation, to catch the eyes of large builders. Interestingly, on the other hand, many big suppliers who are in the field for decades, are suffering from the blemish of litigation issues with some contractors/builders.

Field reputation is considered to be one of the important issues in the selection of Supply Chain Management.

Issue of Transparency

This is also considered to be one of the barriers in the selection of SCM. The builders have their own fear in fully sharing the information, especially, the technical issues. The contention of Suppliers is that unless these things are openly shared, quality will always become an issue. There will definitely be a gap between expectation and delivery. Mounting of this will end up in litigation.

There are ample cases in the field.

For being in absolute transparency, it is necessary that both the Builder and also the Suppliers must have free exchange of communication. This means that there should not be any ambiguity. Clarity in communication is always essential for compliance with the requirements. This applies to both ends, because, misconstrued communications will only end up in mess and even break of contracts.

In this context, it is quite relevant to note that "Clarity of expression comes first. What you communicate should not lead to more than one interpretation. Communication forges strong relationships that in turn generate trust. And trust is the key element that defines good business transactions and personal dealings". [1]

Selection Criteria for Supply Chain

The main purpose of having Supply Chain is to derive the benefits of quality improvement, timely supplies and cost economics.

Hence, it is absolutely essential to choose the right supply source who will ensure the various benefits to the builder. A wrong selection will become counterproductive. Before pinning on the supplier, the builder/contractor should thoroughly verify and get fully satisfied about the full facts of the source.

Some very important points to be ascertained and satisfied before selection of the SC are as under.

Quality of products

It is estimated that the life of a properly built concrete structure is estimated to be 60 – 70 years. All the builders are quality conscious in their construction. There may be some freak cases of small builders who would breach this fundamental thing.

The quality of the products to be supplied must be of outstanding one. Quality of output is determined only by the inputs used in the process. As such, no compromise must be made in this regard.

However big the supplier is, if the standards of supply are poor, they have to be outright rejected. A supplier, may be, not too well known, may have excellent quality in his products. A wise builder would always choose only that supplier whose products are quality oriented.

Cost alone is not a criterion

The aspect of price should, of course, be given due consideration. But, it is to be noted that price alone is not all that determines the selection of supplier. A supplier, whose price is marginally higher but exceptional in quality, should be given the first choice for selection.

It is an accepted practice in the field that the benefits that will accrue to the builder in terms of quality and service will well outweigh the pinch of higher price.

The focus on price in selection has been pushed back now and the quality consideration has come to be the first thing in selection of supply chain.

Reputation of Supplier

It is equally important to note that the reputation of the supplier should also be given due weightage in the selection process. A supplier may be a prominent company in the field but if he has the blemish of litigations, he should, better, be avoided.

It is an accepted fact in the construction field that a supplier with litigation back ground is always offensive (for being assertive) in approach and shows lack of co-operation. Warranty issues become bothersome.

A wise builder would simply brush aside the supplier with litigation background.

Past Supplies

List of past supplies vouchsafes the calibre and capacity of the supplier in meeting the requirements of the builder. A supplier with reputed builders in his clientele always commands priority in the selection process.

Always, Have More than One Source

It was observed that all Big Builders who are in the field for more than three to four decades have more than one supplier in their base. In fact, their selection criteria for suppliers are so strict and only those suppliers who pass through the fire tests, will get included in their supplier list.

However big and reliable the supplier is, the prudent practice of large scale builders is having more than one supplier – two to three suppliers, in their rope. The business is fairly given to all so that all the suppliers are contented and dedicated to the builder.

In this regard, it is relevant to note that "... However, Single Sourcing presents several risks, including (1) exposure in time of shortage, fire or strike (2) Supplier Price Increases and (3) Supplier complacency about quality and customer service. [2]

Advantages of Supply Chain Management

Purchase is a simple activity whereas the process of purchase only matters a lot and deserves attention. There are remarkable differences between conventional material planning purchase and the same through supply chain management.

We can see below a few, but most important things of all.

Conventional Material Planning	Supply Chain Management
Cost based	Quality based
Bulk procurement	Delivery as and when required
Information restricted	Information shared
Supplier just supplies and be done with	Supplier is actually supportive
Wastage due to accumulation	No wastage
Single payment for whole year procurement	Pay only as and when delivered
Wastefully occupying shelf space	Space Management at Warehouse
Improvements not possible	Continuous improvements ensured
Contractor responsible	Supplier accountable
Contractor worried of supplies	Supplier fixed with timely deliveries

In the conventional Material Planning, Cost was only considered and the rest of the things were just ignored. Cost has superseded all other worthy things of the products and delivery.

Now, Inventory is looked at as more of a burden on financial strength as it consumes major chunk of the working capital. In order not to block the money on accumulated materials, the modern management thinking is "to pay as and when received and order as and when needed".

Here, it is relevant to note that "The major shift in thinking since the 1980s has been to move away from the idea of inventory as an asset, to the idea, instead, that inventory can become a huge liability for the firm, the bad management of which will weaken competitive capability in terms of delays, increased costs, reduced output and poor responsiveness to market requirements". [3]

Benefits accruing to Builder on Supply Chain Management

The Builder, who is simultaneously doing construction at more than one place, finds it immensely beneficial in the bulk procurement through SCM.

The peculiarity of construction industry is that the non availability of vital inputs such as Sand, Brick, Cement etc., will virtually bring the whole work to a grinding halt. Not only that, wasteful wages will have to be paid to the workers. (as they will be sitting pretty without any work – of course, it is not their fault!).

Management of cash flow is quite under control as payments are payable only against supplies, in required quantities as and when needed. Some builders enjoy credit period also with suppliers.

Blocking the money on accumulated purchase is totally eliminated in Supply Chain Management. This is a major advantage.

The Builder is free from the bother of materials availability and is able to concentrate more on construction and expedite the completion even ahead of the schedule.

The strategy of SCM enables the contractor/builder to have excellent co-ordination with all the projects so that work does not suffer at any location for want of materials.

Simultaneous progress is ensured in all the projects.

The present day buyers of apartments expect to have a lot from the builder, particularly on quality. The RERA rules also emphasise more on the quality of construction.

The SCM enables the builder to procure excellent quality inputs from the most reputed sources in the market.

The Annual Rate Contract gives them the further benefit of fixed price throughout the currency of the contract (for the year under review) and also assured deliveries as required by the builder.

Delivery is the essence of Supply Chain Management.

In this context, it is worth noting that “customers are most interested in the reliability of the promised order completion date. From the customer’s point of view, this cycle begins with the order placement and ends when the customer receives the order (or) order lead time”.

[4]

The builder enjoys the twin benefits of price protection and also assured deliveries.

The builder, who is covered under SCM, definitely enjoys overall proficiency in construction (as he is free from majority of bothers) and is able to do long term planning and execution.

Today, every business is in the process of continuous improvements and up gradation. Construction Industry is no exception to that.

Tremendous improvements are taking place in the process of concrete mixing, laying and curing. Renowned Cement Companies are doing pioneering research in this. Established builders are taking the advantages of all these through Supply Chain Management System.

One of the important benefits worth mentioning in SCM is substantial reduction in transaction costs.

Logistics Management is yet another benefit in SCM. In the case of open market purchases, the builder is to take care of transportation or in some cases, the supplier would do so but at prohibitive costs.

In the case of breakages or any other at the time of physical delivery, the transporter would absolve himself of the responsibility.

This kind of problems are totally eliminated in Supply Chain Management System. The supplier with whom the Rate Contract is entered into, is responsible for safe delivery of the items at the contractor/builder’s end. Any discrepancy or otherwise, are to be replenished by the Supplier only, without any dispute.

The builder is absolutely safe in the SCM system.

All leading builders who simultaneously embark upon many projects at different places, have a thorough SCM system. They are able to go ahead with unhindered construction solely because of the SCM.

The construction, especially in the city, is taking place with military alert. Space is the main constraint here. Unlike in rural areas where so much of open space is available near the site of construction where the builder has the comfort of keeping materials as a storage godown, the builder has to do everything safely in the site, here.

There are sites where even movement of personnel is done with care and caution. Machines are operated with utmost care so as not to cause any disturbance or damage to the nearby buildings.

When the space availability is so crucial like this, it is just impossible to buy in bulk and store for drawing as and when needed.

The responsibility is fixed with the Supplier to deliver the items, exactly as per the requirement and precisely at the time needed (without causing space difficulty by supplying bulk or suffering of activities by delayed supplies).

This is possible only when there is free flow of information between the builder and the supply chain people, with absolute mutual trust in believing the requirement and honouring the commitment and continuous update of communication.

The degree of success of SCM largely depends on this.

In fact, it is worthwhile noting here that “Supply Chain Management in the Construction Industry encounters many challenges linked to poor logistics planning, lack of partnerships and strategic alliances with suppliers, resistance to change and communication problems”.

[5]

Conclusion

Large Builders have more than one source in their suppliers list. As business grows, trade cycles and business volatilities also grow in greater proportion. Established sources who are in the field for decades also get struck by this, forcing them to slide their commitment. They may get the cover under Force Majeure Clause. But, the ultimate sufferer will be the builder.

This is the very reason why big builders would always have a second reliable supply source. Their pattern of business is procuring from both the sources (perhaps, with varying off take size). They never get bogged down by delivery constraints which will otherwise hit the progress of construction.

Small Scale Builders are not even aware of Supply Chain Management. Upon explaining same, they said that it is not required by them at all. They are quite comfortable with open market local purchase.

Some big builders openly say that the benefits of SCM can also be got with just local purchase as all the products are comparable and have similar characteristic features.

It was noticed that marginal delays do occur even in SCM. The Supervisor of the second site privately admitted that delay of one day is not uncommon. To coincide with the committed date of delivery, the materials will come but in the evening. For practical purposes, the work can start only the next day. This is, of course, inevitable.

Some large builders have excellent rapport with the Cement Companies. The technical advice of these companies enables them incorporate advanced technology in construction process. They have also been able to impress upon their suppliers to follow same in their production process.

It has twin benefits. Advancement is implemented – By the supplier in production process and by the builder in construction work. This can be termed the Greatest Benefit of Supply Chain Management.

Recommendation

The Supply Chain Management is popular and widely followed only by the Mega Builders who do multi projects. Their success and reputation basically lie in this. It is, of course, a fact.

Knowledge sharing and transparency in communication are a must for the success of SCM. The supplier should be thoroughly kept informed of what is expected of him in the future supplies. Lack of information or clarity of communication may prove costly to both the builder and also the supplier.

Besides having Supply Chain Management for materials, it is also worthwhile having the same for Cranes, JCB etc., which are largely used in mega projects. The general feeling of the builders is that SCM is essential for materials only and not for others.

The fact in the market is that these machines are in great demand as even small scale Builders start using these to save labour costs. Halt of work could take place due to this as well. Whatever be the reason, it is only eating away the legitimate profits of the builder.

Hence, it is only ideal to have SCM for these machineries also, going by the size and frequency of use during the process of construction.

Most of the big builders have only very minimum staff in their permanent payroll and majority of people are hired through SCM of Labour.

With active participation from Builders, Vendors and Logistics Group, the SCM is sure to produce wonderful results in construction industry in terms of quality of construction, committed delivery and ultimate customer satisfaction.

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