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Realities of supply chain collaboration

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***Abstract*—This paper aims to investigate the gap between the interests in supply chain collaboration (SCC) and the relatively few recorded cases of successful applications – this is the reality of SCC.**
Design/methodology/approach – The research represents the viewpoints of the authors based on their collective field experiences and literature reviews.
Findings – Three realities of SCC are identified – establishing the prerequisites for the collaboration process; where the process starts; and where it terminates. Moreover, a realistic structured approach to SCC containing three loops is outlined.
Research limitations/implications – Increased awareness for practitioners in SCM by crystallizing when collaboration is useful; what to change; what to change to; and how to make changes happen.
Originality/value – The value of the paper is that it offers a "different" perspective on SCC.
***Keywords*— Supply chain management, Partnership**

I. INTRODUCTION

Supply chain management (SCM) evolved from a traditional focus on purchasing and logistics practiced between the mid-1960s and mid-1990s, to a broader, more integrated emphasis on value creation in the new millennium. Leading companies increasingly view supply chain excellence as more than just a source of cost reduction – rather, they see it as a source of competitive advantage, with the potential to drive performance improvement in customer service, profit generation, asset utilization, and cost reduction. Effective collaboration within each entity (cross-functional) and between chain entities (cross-enterprise) is essential to achieve these goals, individually and collectively.

The literature on supply chain collaboration (SCC) is very extensive in both business and academia, but not always on target. For example, few writers focus on the cultural aspects of collaboration, which is a serious oversight. A recent survey conducted by Supply Chain Management Review and Computer Science Corporation

(SCMR and CSC, 2004) observes that collaboration is cited as the single most pressing issue; but how to achieve it is not well understood. The survey showed that 44 percent of the organizations in the sample have functions specifically for supplier and customer collaboration. However, only about 35 percent of the ollaboration initiatives turned out to be even moderately successful. Why is that? Perhaps, it is because not all participants in every supply chain have embedded collaborative values. You cannot collaborate with a party that lacks a genuine desire to collaborate.

Indeed, our collective field experiences and literature reviews suggest that genuine collaboration is far more difficult to achieve than simply talking about it as many

companies do. This is because:

A. Time span

While everybody speaks of network integration, most companies have difficulty "aligning" their internal processes with customers and suppliers. Relationship building takes more time than writing an article or a business prospectus.

B. IT infrastructure

Lack of connectivity, a common platform for data communication and information exchange.

C. Rust

An unwillingness to share core information due to confidentiality or lack of trust; this is a cultural factor, one of many in play.

D. Organization design

The "Functional" silos in organizationswill usually overpower the "Account Management" roles designed to foster collaboration between parties.

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E. Competition

The Executive fears that integration might limit responsiveness to major changes in the competitive environment or are anxious that current suppliers may become future competitors, or that a customer will backward integrate into their domain

F. Fear of external pressure

Smaller, resource-constrained companies fear that the larger channel "partners" might use SCM opportunistically to extract value and squeeze margins

G. Powerhouses within the organization

Different functional departments are eager to maintain their bargaining power, and friction typically arises between them.

H. Financial

Short-term thinking dominates current business, making longer-term agreements very difficult. Financial and operational agreements on inventory ownership, sharing investment costs and benefits, pooling resources, and sharing forward business plans are indispensable to success in SCC practices.

II. REALITIES OF SUPPLY CHAIN COLLABORATION

Paradoxically, SCC is immensely popular both in business and academia and at the same time most collaborative initiatives end up in failure (SCMR and CSC, 2004; Bittici et al., 2005; Fawcett and Magnan, 2002). We should, therefore, face up to the realities of SCC. The following questions are designed to probe the problems at source:

Equality between partners? Collaboration is not always purely voluntary. Powerhouses in the chain, such as Wal-Mart, have a major impact on how collaboration is practiced. Some supply chain entities may be forced to participate; others do not fully support the collaborative ideas, or desire more influence in the collaboration process. There appears to be a spectrum of collaborative relationships between forced participation and equal matching. Ideally the relationship should be based on equal matching. But how often is this the case? We will elaborate further on the various business roles within the SCC.

Ongoing or limited? SCC can be seen as an ongoing effort for dealing with supply chain constraints. Every time a supply chain constraint is removed, the supply chain entities accomplish a higher level of supply chain performance. The relevant concepts are known as theory of constrains (TOC), , and originate from a predominantly manufacturing environment. Yet, at some point a constraint may be encountered that limits the collaborative efforts to move on. We will argue that the structure of the collaboration group greatly impacts which constraints are likely to be elevated and which not, hence limiting supply chain performance.

Potentially collaborative? Maybe we are expending too much effort in the wrong places by assuming that all supply chains have the potential to be "collaborative"? Certain supply chains may not be suitable for collaborative relationships at all. Similarly, the level of suitability for collaboration differs amongst different channels. Supply chain strategies and operations should be anchored around an in-depth understanding of "buyer behavior" (Gattorna, 2006). For any given product or service category, there will be no more than 3-4 dominant buying behaviors evident in the customer base, one of which may be collaborative

Balancing priorities? According to TOC concepts, there are only a few constraints present in a system at a time. TOC also warns against traditional cost accounting methods that view operating expenses as the dominant measurement. Since, operating expenses are found everywhere, almost everything is considered as

important. As a result, global supply chain effectiveness is often overruled by a local efficiency goal.We believe that expensive SCC programs should be preceded by a thorough supplychain analysis that properlybalances global versus local priorities. The main question should be "where and what actions are required first?"

A. Collaboration: equality between partners?

The SCC principle tries to build a strong unity while keeping the original ownership structures intact. Although we do not consider cases where other supply chain functions are brusquely purchased, we are not naïve enough to believe that power does not play a role in collaboration. It may be that supply chain entities are forced to

collaborate; desire more participation in the decision-making; or disagree on certain issues; and ultimately find they are not in a position to lead any change after all.

Mentzer indicate that forced participation encourages exit behavior if the opportunity exists. Also Maloni and Benton (2000) warn

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that power-holders in the supply chain should be careful applying their power; misuse will lead to dissension and underperformance. In their empirical study, they show that there are different sources of power, with contrasting effects on supply chain performance.

We believe that comprehending the position of power, and the division of roles, are the basis for defining the collaboration process and determining the most appropriate future measures. We propose three main roles: collaboration leader, collaboration coordinator, and remaining collaboration members. In Section 3.2, we elaborate on possible combinations of these roles, indicating a variety of collaborative structures.

The collaboration leader is the initiator of the collaborative effort. Perhaps, this entity is not the first entity that comes up with collaboration ideas or prepares the collaboration prospectus, but for sure it gives the "go" or "no-go" signal. Without the approval of the collaboration leader there is no collaboration. The leader's role is to perform a broad range of activities, ranging from evaluating the main strategic partners, shaping and communicating the vision and corresponding strategy, coordinating collaboration meetings, linking relationships, monitoring overall performance, and providing incentive structures to improve performance. In most supply chains, there will be only one such entity but there can be multiple leaders in a chain.

The collaboration coordinator is the entity that is chosen to coordinate collaboration activities. While the collaboration leader focuses obviously more on leadership than management, the opposite is true for the collaboration coordinator. The task for this entity is primarily to manage supply chain transformation. Three scenarios are possible: the collaboration leader chooses to coordinate the collaboration itself or it appoints another entity to be the coordinator, a supply chain member or a non-member (4PL) is chosen. This decision depends mainly on the level of "threats" faced by the collaboration leader if the coordination is performed externally, such as a loss of bargaining power.

Remaining collaboration members are entities that are involved in the collaboration process but do not have the leading or coordinating role. Collaboration might be imposed to these entities: they are given the choice to cooperate or to leave. This collaboration can still be an excellent way to ensure continuity and enhanced profitability if the process is carried out properly, considering the prerequisites

B. Collaboration: ongoing or limited?

SCC can be seen as a sequence of business initiatives carried out by the collaborating members of like mind. Whether this sequence is ongoing or limited is the question. An ongoing collaboration requires:

A generative dialogue among entities to ensure alignment

Individual entities with group concerns to guarantee balanced priorities

A creative and innovative chain to avoid merely the fulfillment of the set of business initiatives; otherwise the collaboration will be limited.

Applying TOC concepts helps us realize that SCC is an ongoing process, yet may sometimes reach its limit.

The TOC concepts were originally adapted to a manufacturing environment, but apply equally well to supply chains. As in any system, supply chains are haunted by constraints. The purpose of SCC is to deal with these constraints and bring supply chain performance to a higher level. TOC introduced a five-step approach to deal with the system's constraints. The fifth step of this approach is return to step one, because whenever a constraint is lifted, a new constraint will appear somewhere else in the system. And all steps should be executed again. As such, TOC supports the continuous improvement philosophy, and implies SCC is an ongoing process.

Three types of constraints may be encountered: physical constraints, market constraints, and policy constraints. Physical constraints are tangible, like resource capacities, people or machines. Hence, physical constraints are also known as capacity constraints or resource constraints. Elevating a physical constraint practically comes down to adding capacity, either by buying additional capacity or by outsourcing production or services. Market constraints are easier to identify but more difficult to lift. Obviously, a market constraint implies the size and complexity of the market, i.e. demand is lower than available capacities. Elevating a market constraint affects other departments as well, like marketing, product development, etc. Policy constraints are intangible and, therefore, difficult to identify for management. Policies are rules to coordinate and control systems. Incorrect policies may arise in situations where the business environment has been changed but the old policies remain. Moreover, incorrect policies can be local performing well, but have negative impacts on the system as a whole. Elevating a policy constraint comes down to removing the old rules and introducing new ones that are consistent with the supply chain strategy. Changing policies and the cultural mindset of employees is tough to do and may take years in large organizations.

As stated earlier, many collaboration practices fail, suggesting that SCC is limited. Constraints may be encountered that could not be

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dealt with, or the collaboration leader did not see the benefits for further collaboration. We identify the following situations in which a constraint is blocking SCC:

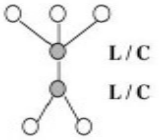
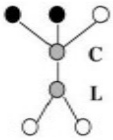
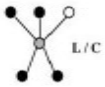
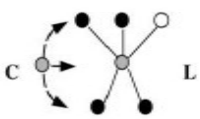
1) *Resource constraint:* Adding capacity should normally not be a problem, unless the investment benefits are not justifiable. This is more likely to happen when the financial linkages (cost/profit sharing) with the collaboration members are missing.
2) *Resource constraint:* Shortages of raw materials might limit the collaborative supply chain to increase throughput. Structural shortages can lead on the other hand to tighter horizontal relationships.
3) *Market constraint:* The size of the market limits the supply chain to increase sales. SCC needs to be expanded to other departments within the supply chain entities that were not involved in the first place
4) *Policy constraint:* When the policy constraint lies within the leader entity, the leadermight notwant to acknowledge that and is notwilling to change.While policy constraints at other entities would hardly cause the collaboration process to end.
5) *Policy constraint:* The type or nature of the market does not obviously argue for collaboration. For instance, in the dynamic flower market buyers continuously browse wholesalers for the cheapest price. Collaboration between wholesaler and customer would imply a drastic deviation from the old trade system and in fact comes down to serving a complete other market segment. In the next section "Are all supply chains collaborative?" will elaborate on this issue.

The diagrams shown in Table I represent some general collaborative structures regarding the three main roles listed earlier. These diagrams offer graphic scope for variations on the shape of the evolving chain (indicated by the circles), the position of the leader (colored circle, denoted by L), coordinator (colored circle, denoted by C) and remaining collaborating members (hatched circles).

C. *Collaboration: potentially collaborative?*

Structure affects behavior and vice versa behavior affects structure. This phenomenon is also established by the well-known beer-game. Yet, we are interested in specific structures, i.e. which supply chains are especially attractive to collaboration, and which supply chains do not have collaborative value? In the previous section, we discussed constraints blocking collaborative initiatives. Here, we will show that the supply chain structure itself can be a constraint. In addition, we like to distinguish between different customer and supplier types, hence distinguish between supply chain channels. Some channels may have collaborative value while others have none.

We indicated earlier that there are different types of constraints blocking supply chains, which could limit collaborative initiatives. Sometimes, it is just not worthwhile seeking to collaborate at all. Some people typify such situations as a consequence of policy constraints. But it is not just that. Although policies are part of the structure, they are a result of the structure as well.

Collaboration business model	Situation	Collaboration limits: Physical constraint	Market constraint	Policy constraint
	Dyadic relationship between two equally powered entities, e.g. major manufacturer, major retailer	Least likely	More likely	Less likely
	Collaboration leader sets rules, but lets other entity coordinate, e.g. major wholesaler, major retailer	Least likely	Most likely	More likely
	Collaboration leader also takes control, e.g. major OEM	More likely	More likely	Most likely
	Collaboration leader sets rules and outsources coordination to 4PL	Less likely	Most likely	More likely

Our experience with the Dutch flower export industry is a good example of such supply chain structure constraint blocking any

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collaboration. At a traditional large flower exporter, the notion of business dynamics is profoundly presented throughout the process. All the big exporters are located right next to the auction building, their main supply source. There is intensive cooperation between the sales and purchase units. And internal logistics is completely designed to provide quick response. The statistics show that more than 70 percent of daily total sales are so-called last-minute sales. These last-minute customers wait until the very last moment of in pursuit of the best deal. Although collaboration is possible with this group of highly dynamic buyers, it would drastically alter the business structure. Therefore, we suggest that the collaborative value is relatively small given the current business structure.

For any given product or service category, Gattorna (2006) explains, there will be no more than 3-4 dominant buying behaviors. In-depth analysis of the customer base will help us understand what these are in a particular situation. The implication is that each relationship type has a different need for collaboration, in terms of scope and intensity.

Some retailers have worked out how to play the game very well with their supply base, and collaborate with some key suppliers while acting in a very adversarial way with the bulk of their suppliers, playing one off against the other for price.

Interestingly, those companies that do not recognize which of their customers desires a genuine collaborative relationship, very often end up losing these very profitable customers as they seek to satisfy the more demanding segments in their marketplace, generally at a higher cost-to-serve.

Overall, being deeply aware of the customer and supplier base is critical to success. Not all customers or suppliers deserve to be treated equally because not all of them will have collaborative value

D. Collaboration: balancing priorities?

The business community understands the key principle that their organization would perform better if all parties follow the same goal and optimize the results of the overall chain. Similarly conclude:

Managers are convinced that future success, i.e. long-term competitiveness, depends increasingly on synergies created through collaborative relationships.

We believe difficulties lie with:

1) Identification of the weak spots in current supply chain; and

2) Finding the balance between global chain effectiveness versus local efficiencies.

Cutting costs locally always looks tempting, but TOC warns against traditional cost accounting approaches that view operating expenses as the dominant measurement. This gives the impression that an organization and its supply chains are composed of independent variables. Since, operating expenses are found everywhere, almost everything is considered as important. TOC suggests the opposite: only a few issues deserve top priority in bringing chain performance to the next sustainable level. The key to accomplishing the collaborative chain is to take a strategic perspective across the entire chain rather than focus at the individual entity level. This is supported by further evidence that we are moving from a world where individual entities stand and compete alone in their respective markets, to a world where supply chains will be competing against each other. The global airline industry and the automotive industry are prime examples of this phenomenon. A balance between chain requirements and individual players has to be sought and found. But finding this kind of compromise can be risky, and works best where there is a good cultural “fit” between the parties involved. Collaboration initiatives can be endangered when local priorities of individual entities, and global priorities of supply chains get confused. Various supply entities may feel uncomfortable with the changes, and may even misuse their power in order to preserve old ways. Protest actions can occur by purposely communicating wrong data, delaying transactions, etc. Obviously this negative behavior should be avoided at any times.

It is better to invest the right way from the outset. Investing in the wrong place or compromising on local and global priorities may have worse results than just lower expected returns. The ongoing collaboration effort forms a reinforcing process. An incorrect start leads to poor results, which in turn impacts future collaborative efforts negatively. Supply chain relationships often get caught up in a virtuous cycle If some strong positive pulse does not break this virtuous cycle, the collaboration initiative could come to a quick end. This observation is supported by the recent survey conducted by SCMR and CSC (2004). A vast majority of the respondents commented that the supply chain is vulnerable due to the uncertainties associated with the implementation of new SCC initiatives. Therefore, balancing global and local priorities is an essential step in the collaboration process.

III. LOOPS OF SUPPLY CHAIN COLLABORATION

SCC is a decision that is taken over and over again, each time by posing a new question. As such collaboration can be seen as a

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series of loops. These loops are discussed in Section 4.1. In Section 4.2, we elaborate on identifying the right supply chain strategy, which turns out not to be a "blanket approach" for all supply chain entities and in fact differs for each buying behavior. Finally, in Section 4.3, a general growth path is presented. As the loops of collaboration are revisited the supply chain performance is step-by-step brought to a higher level. Hence, the growth path is also called the "ladder of collaboration."

A. The three loops

Clearly the number of unsuccessful initiatives is large. Keeping the realities in mind, we will now elaborate on the prerequisites of the SCC process. As we have argued SCC is essentially an ongoing relationship-focused process. Hence, it makes sense to present SCC decision-making as loops, which are characterized by interaction and continuance .We divide the SCC decisions into three loops, which are briefly described in Figure

Concerning the collaboration coordinator, this would logically apply to the entity with most knowledge and experience. Yet, business is not all that logical and also here the powerhouses play an important role. In case of two leaders, i.e. two equally powerful entities, joint coordination is most likely (this is most often the case in collaborative planning forecasting and replenishment initiatives). In case of having two (or more) leaders, 4PL coordination is also a possibility, especially if the leader is involved in multiple SCC initiatives. In case of only one leader, it will mainly depend on the supply chain structure and product characteristics whether coordination is done by the leader itself, another supply chain entity or a non-supply chain member. For instance, for complex products, with many components coming from many supply sources, the leader will likely take charge of the coordinating tasks or perhaps outsource coordination to a 4PL.

The group of strategic supply chain partners is responsible for both creating a sense of urgency, making the involved supply chain entities believe in the collaboration and developing the vision and appropriate supply chain strategy (A2). The latter should not be a blanket approach for the whole chain, but needs to be tailored down to each entity (A3) and supplier-customer combination. In Section 4.2, we will elaborate on the supply chain strategy.

1) *The change loop***.** If the strategic objectives are clear, the priorities can be analyzed. What to change and what to change to? At this stage the leader determines, in consultation with strategic partners, which chain entities should be included in the collaboration process (B1). In fact the concept of choosing the collaboration group is rather simple. Every entity performing below target chain performance must be included (see Section 4.3 and Figure 5). Note that the target performance is updated as SCC is accomplished. Hence, new entities can be included with the introduction of new collaboration initiatives. We roughly measure the ability of an entity to meet the supply chain performance goals by its performance on lead-time, quality, DIFOT, and costs (B2). Of course, an entity is only willing to participate if it is beneficial; as such the benefits of collaboration need to be quantified. Another way is to use the Figure 3. Behavioural segmentation proposed by Gattorna (2006) to guide us in designing the internal capabilities of the organization at each buyer-supplier interface. By comparing the external market cultures of customers with the internal cultures of the supply organizations in the chain, the gaps can be measured and used as the basis for a transformation program.
2) *The control loop.* Governance and control close the loops and basically keep SCC as an ongoing process. The first function is to govern the transformational changes (C1). The supply chain entities that are included in the transformational changes will all work with the implemented performance measures and are required to report to the supply chain coordinator. The second function is to govern the strategic objectives (C2). Kaplan and Norton (2001) and Lee (Kirby, 2003) point out that the strategy and vision of a company should be a closed loop and continuous process. "Today's order winners are tomorrow's order qualifiers." In an interview, Lee argues that companies or supply chains survive by being able to manage transitions, which can be changing market conditions, evolving technology, or changing stages in product life cycles (Kirby, 2003). The third function, which is not discussed in this paper at all, is to allocate benefits and burdens (C3). Especially, when the supply chain enters an intensive form of collaboration performance, measures are required in order to allocate the investments or profits properly among the involved chain entities.

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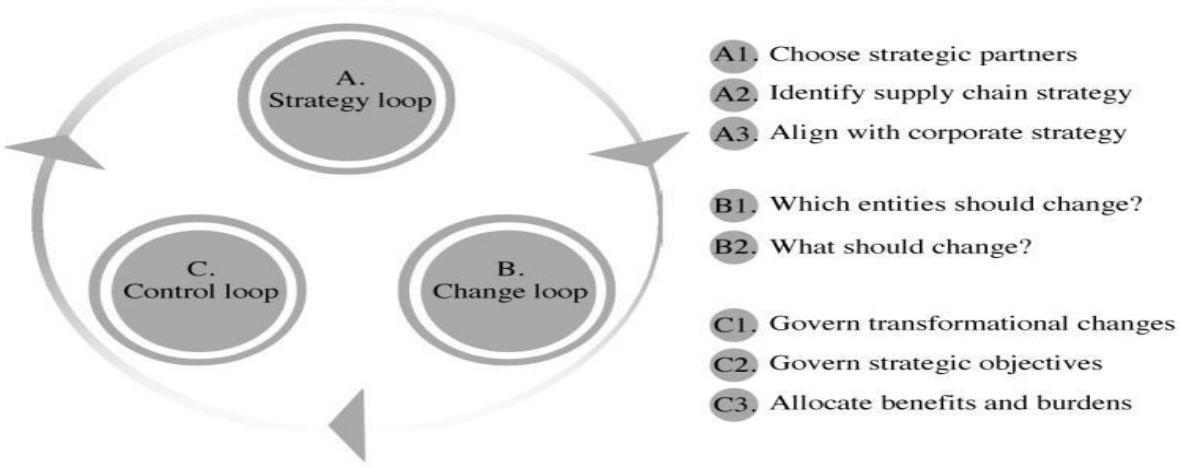

B. Strategy and the supply chain

Strategic partners should start by developing their vision and strategy and as such choose the market segments that their supply chain will aim at. Moreover, what are the required core competencies? This means agreeing on how they intend to distinguish their offer from competitive chains in the chosen market segment (e.g. lowest cost, best customer service, fastest response, and most innovative solutions). Mason-Jones et al. (2000) argue that supply chains must excel at the order winner metrics (e.g. price or service), and be highly competitive at the order qualifier metrics (e.g. quality, lead time).

The first to link supply chain strategy with product characteristics or supply chain uncertainties was Fisher (1997). His simple framework of predictable demand (for functional products) and unpredictable demand (for innovative products) was later extended by Lee (2002) to include both demand and supply uncertainty.

And secondly, does a supply chain not face varying levels of dynamics concerning the buying behavior of customers? Customers are not locked into a single buyer behavior. Gattorna (2006) has indicated that it is more realistic to view the "alignment" of supply chains with customers as dynamic and changeable depending on the situation where customers find themselves in at the time of purchase.

1) *What to change?*. In our approach, which we call the dynamics framework, we present a new representation of the supply chain . It is not new to divide the supply chain in two parts, upstream and downstream. Recalling the TOC, we refer to the downstream part as the critical time path (CTP), which is measured as customer lead-time from CODP to the end-customer. And the upstream part is referred to as supply path or non-CTP. The endpoint is the demand-driven point. Unique channel strategies are defined for every distinct type of buying behavior, which is a combination of product and customer buying behavior. Accordingly, we distinguish between customer dynamics and supplier dynamics. The level of customer dynamics is determined by: customer behavior at time of purchase, predictability of demand, product life cycle (length and current stage), and product variety. The level of supplier dynamics is determined by: variability in different manufacturing stages (like breakdowns and quality problems, etc.), reliability of suppliers in term of time and quantity (DIFOT), and the level of collaboration in supplier-customer relationships. Since, the level of dynamics varies greatly by industry, the CTP will not be equally "critical" in every industry and corresponding channels.
2) *What to change to?*. The ultimate goal is to make a smooth supply chain that acts perfectly according to the chosen supply chain strategy, whether that is speed, cost efficiency, or something else. But the dynamics of customers and suppliers make the task difficult. SCM has two important instruments to cope with uncertainty: capacities and inventories. Thus, smoothing the operations in the supply chain and dealing with dynamics involves proper positioning of the buffers and setting capacities along the chain. This multiple alignment is required for all customer buying behaviour type present. Whatever happens we do not like any interruption to the customer lead-time, i.e. the CTP. Any disruption within the CTP, and disruption by deliveries to the CTP negatively impacts on customer lead-time. This is the upstream side of the supply chain and can be forecast-driven for more efficiency; while downstream responses toexact customer orders, aims for responsiveness We would like to get a more detailed view of the supply chain and as such prioritize the important parts along the chain, like the entities that deliver to the CTP and all the entities within the CTP. The relationship between dynamics and the implications of supply chain strategy for supply

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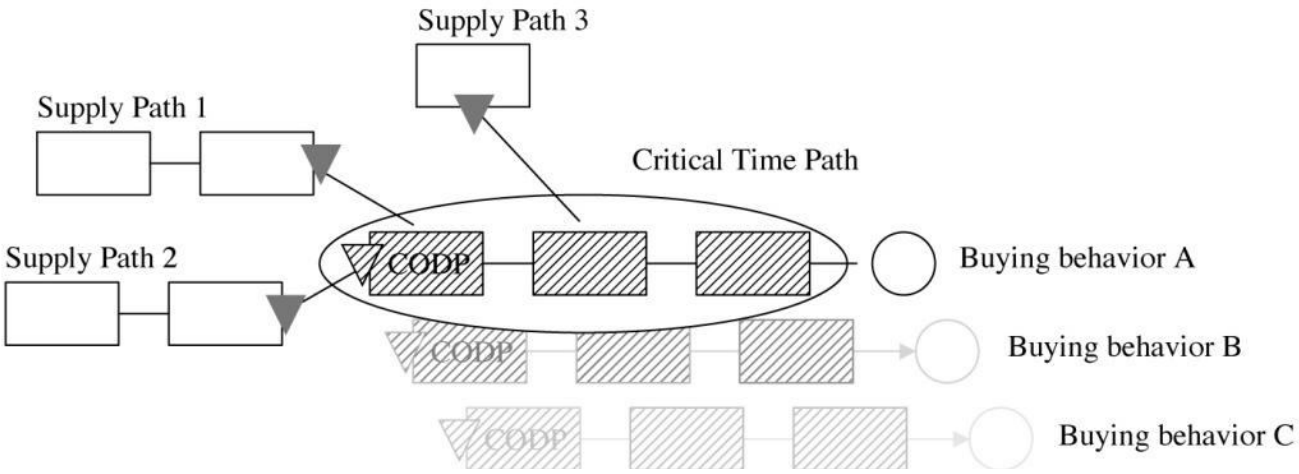
chain priorities for each entity



There are three types of capacities to be set: productive capacity to meet demand; capacity to protect against statistical fluctuation of the process; and excess capacity for quickly adapting to customer dynamics

Furthermore, three types of inventories are possible: supply inventories at the connection of the non-CTPs to the CTP; CODP inventory; and distribution inventories adjacent to end-consumers.

Quantitative analysis should provide the evidence for collaboration benefits and detailed information concerning the future of:

a) *Supply chain design*. "How to design a supply chain conforming with the strategic objectives?"

b) *Supply chain coordination*. "How to coordinate the flows of information, goods and cash in order to realize the strategic objectives?"

Supply chain design addresses mainly the locations, number, and the size of supply chain entities, where the right capacities and buffers should be positioned. Moreover, we wish to address the importance of determining the strategic position of capacities and inventories simultaneously (Bradley and Arntzen, 1999). In manufacturing, it is well-known that maximizing capacity utilization can lead to an inappropriate balance of capacity and inventory. Yet, in SCM this is sometimes neglected. For example, our experience with a major electronics company shows that while the company paid attention in increasing capacity efficiencies, it overlooked the fact this resulted in huge inventories at other business units of the same enterprise.

Customer dynamics	Supplier dynamics	Non-critical paths ("upstream")	Critical time path ("downstream")
Low	Low	Low protective/low excess capacity Low inventories	Low excess capacity Low inventories
Low	High	High protective capacity High supply inventories	High CODP inventory High excess capacity
High	Low	High excess capacity	High distribution inventories
High	High	High protective capacity High excess capacity High supply inventories	High CODP inventory High excess capacity High distribution inventories

Table II. Implication of the supply chain strategy

C. Climbing the ladder of collaboration

The loops of collaboration emphasize the step-wise improvement of supply chain performance through collaboration. We call this process "the ladder of collaboration," which is a symbolic growth path of how SCC changes happen. The difference between the current level of supply chain performance and the target level needs to be covered by various collaboration initiatives. We believe that there are only a few focus points. Or as TOC explains: "there are only a few system constraints at a time." These entities are of

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primary concern. Step-by-step, supply chain performance is boosted as shown in Figure 5.

The initial level of collaboration is "Communication" assuming there is no starting collaboration. The goal of this level is to improve productivity and enable information sharing through simple IT applications. Communication is productivity-centric allowing the collaboration members to enhance decision-making and may result in improved delivery rates, fewer inventories, etc. The focus is on dealing with physical supply chain constraints.

The second level of collaboration is "Coordination," which focuses on the coordination of intra- and inter-entity processes. The main purpose at this level is to synchronize flows and to automate certain routine decision-making processes to improve speed and accuracy. The tools include strategic positioning and sizing of capacities and buffers, and development of simple decision-making regimes. The focus is on dealing with both physical and policy constraints. "Coordination" necessarily involves additional investments in IT infrastructure.

The third level of collaboration is "Intensive collaboration," which implies increased involvement of the collaboration members to improve the strategic management decision-making and enhance innovation in the chain. A high level of collaboration creates a more open dialogue amongst collaborative entities and tends to spread to other areas of the enterprise other than just those related to logistics. The focus is on further dealing with policy constraints.

The fourth level of collaboration is "Partnerships," which involves extended financial linkages, such as sharing of investments and profits. The aim is to drastically improve knowledge sharing between members and a reduction in R&D time. In this way new capabilities are added to address the new market needs and remove any market constraints present.

IV. CONCLUSIONS

The reality is that many SCC initiatives fail. Still, the world believes in the value of selective collaboration. It is our job to improve the ratio of supply chains that achieve higher performance through successful collaboration. Therefore, this paper carefully addresses some misunderstandings about the collaboration process.

First, collaboration comes in many formats. The structure of the particular collaboration depends on the business roles of the supply chain entities involved, i.e. the powerhouses in the chain. Equal partnership in every relationship is not a necessity.

Second, at some point in the collaboration the group will face a supply chain constraint that limits further collaboration. Remember that the structure of the collaboration group significantly impacts the types of constraints it can deal with. Third, supply chains or channels are not necessarily all collaborative. Of the three or four possible dominant buying behaviors present, it is important to recognize which (if any) displays collaborative characteristics.

Fourth, collaboration ends up in failure when the start is all wrong. Too often compromises cloud the collaboration process. The result is a mixed-up balance between global effectiveness and local efficiencies. On the whole, collaboration can only fail, and that is exactly what will happen.

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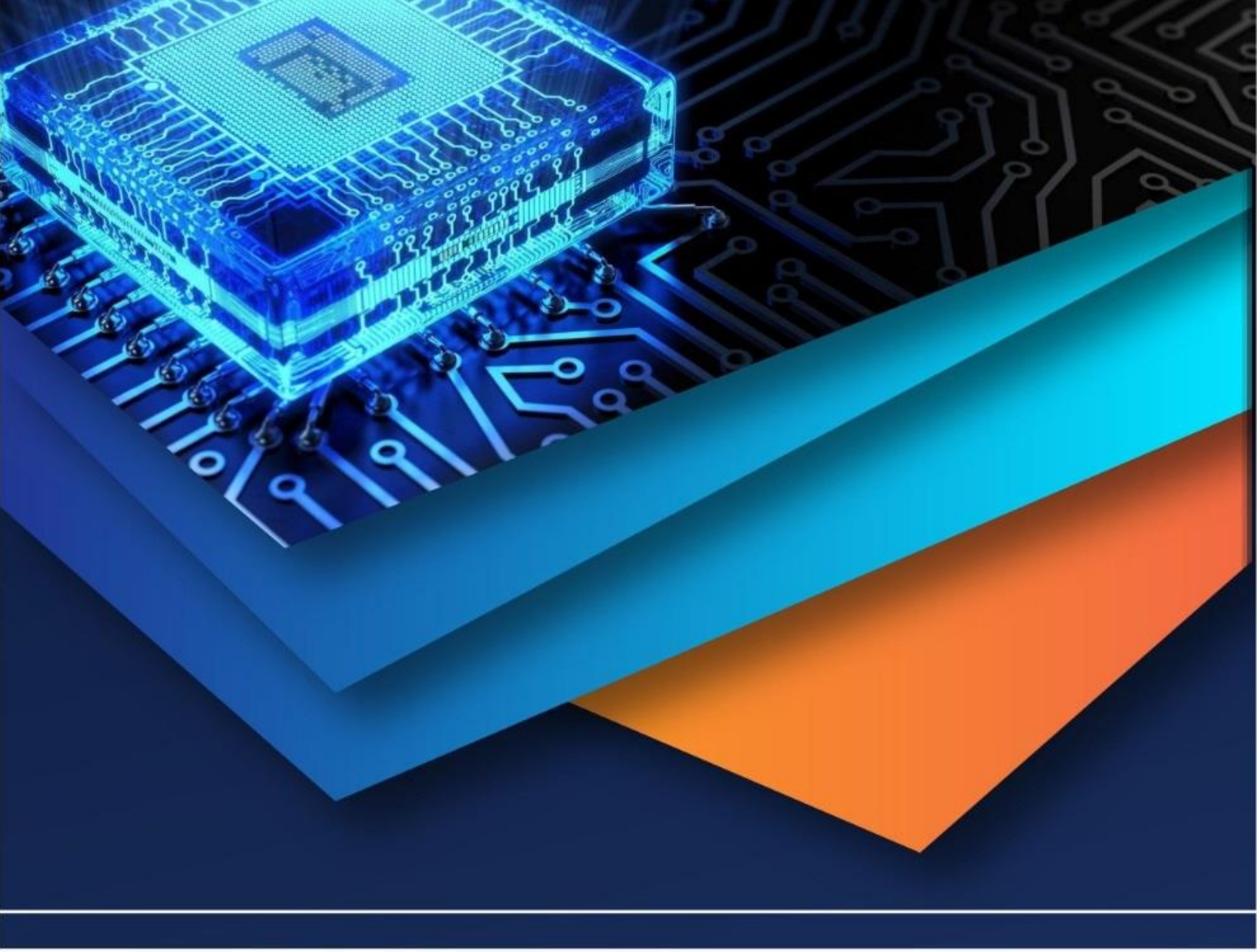

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