TOTAL BUSINESS CYCLE TIME.....

……. A positional paper for your improvement!!!

This paper is an extract of material from the book: **CYCLE TIME MANAGEMENT**… ***The fast track to productivity improvement.*** **By Nigel Southway.**

NEXUS uses a concept for orchestrating change in your company through a focus on Total Business Cycle Time Reduction - dramatically improving productivity and profits.

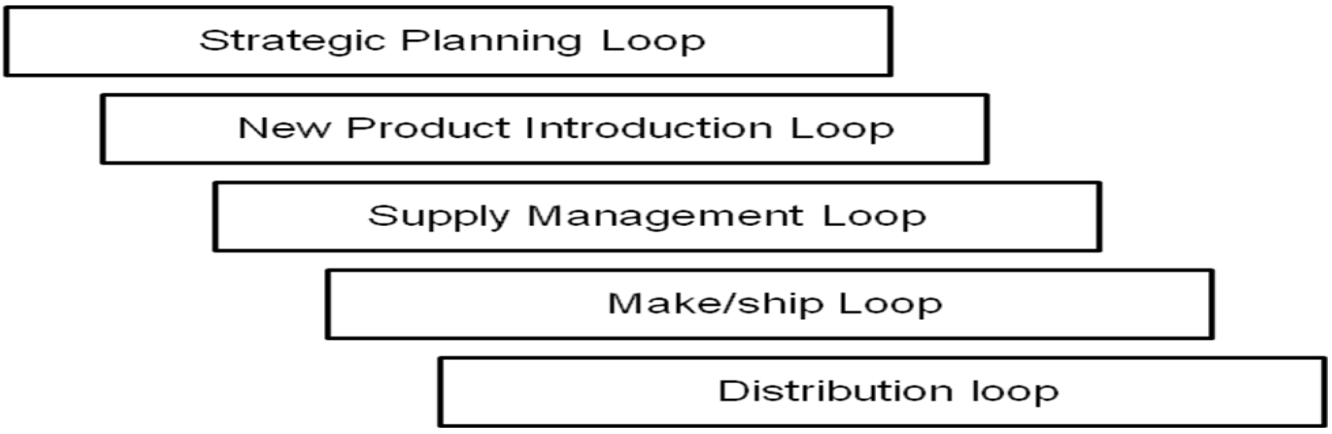
Why focus on cycle time?

These days global competitiveness is forcing companies of all sizes to go to ever-greater lengths to improve customer satisfaction. If companies continue to use traditional operating practices, they will be unable to meet these new demands. However, if they focus on business cycle time as their main lever for productivity improvement, they can decrease delivery time, quality problems and overall costs; obviously creating a more satisfied customer.

What is Total Business Cycle Time?

A company's total business cycle time is measured from the time a customer's need is identified, until the receipt of payment from that customer for the finished product. The best analogy is a relay race. The time begins with the starting gun and ends when the last runner breaks the tape at the finish line. It includes all the time required to run each leg, as well as the time required to transfer the baton at the end of each leg.

Every business has 5 cycle time loops!



The 5 Cycle Time Loops in perspective…….

o The Make/Ship Loop. The time from receipt of material, through the value-adding conversion steps, to shipment or transfer of a finished product to the distribution loop.

o The Distribution Loop. The time from finished production to shipment to the customer from the distribution warehouse.

o The Supply Loop. The time from release of the purchase order to receipt of the correct materials, in the right quantities, at the right point in the manufacturing process.

o The New Product Introduction (NPI) Loop. The time from identification of the need for a new product to delivery of the first unit of product to a customer.

o The Strategic Planning Loop. The time required to develop a new strategy, make the decision to adopt it, and then implement it.

Waste elimination, simplification and integration are key!
In the last two decades it has become clear that the departmentalization of these loops and the waste or non-value added activity buried in these loops has inhibited business competitiveness. We want to demonstrate why all the loops in a business must be simplified and integrated if total business cycle time is to be reduced, and a global competitive capability achieved.

But let's first examine each loop in more detail. …….

The Make/Ship loop

Up to the 1980's most companies trying to make productivity improvements focused on the Make/Ship loop and continued to try to shrink labor content via automation. Prior to the 1980's, a long (and comfortable) backlog of orders in this loop created a sense of complacency
and high inventory levels.

This complacency and comfortable level of inventory also rippled through the Distribution and Supply loops. As long as customers tolerated the long wait, or paid for the inventory, the system worked, because it enabled the manufacturing process to minimize product cost by using large economical batch sizes. This approach increased the total cycle time, but cycle time was not perceived as a critical issue.

The problem started when customers began demanding shorter delivery times, and were able to get them from competitors. As a stop-gap measure, sales departments, to avoid the prospect of losing a customer, responded to this competition in the following ways:

o They persuaded manufacturing to commit to unrealistic delivery times. As a result, sales department soon discovered that they were constantly having to break promises to customers; to keep all customers happy, they had to become internal expediters, which increased the tension with manufacturing.

o They increased and forced factory orders for finished goods and distribution inventory. This increase placed even more pressure on manufacturing, and the ensuing loss of trust led to second-guessing between sales and manufacturing. In addition, the already uncertain
sales forecast used to order material supplies had to be made even further in advance, since the suppliers were caught in the same lead time squeeze. As the forecast period was extended, the potential for error and disagreement increased.

A further problem arose for those organizations when competitors could deliver the correct product in a measurably shorter cycle time. The lower cycle time meant that these competitors had less non-value added steps in their process, so could produce at a lower cost and did not require such large (and expensive) inventories, which further reduced their costs. Not only were the high cycle time companies struggling to compete with

deliveries, but they were faced with margin problems and in some cases, cash flow or credit squeeze problems due to the higher costs of inventory and other waste in the organization's structure.

Just reduce your inventories!

The reaction of some traditional manufacturers was to just reduce their inventories. The first industries to take this cold shower approach were electronic and computer manufacturers. The automotive, shipbuilding and quality consumer goods industries jumped in soon after. For a while the slimming pill worked. But as competitors with even shorter cycle times continued to steal market share, it became obvious that to survive, companies would have to do things differently, not just do them harder, but smarter.

Something had to be done. The excessive time it took for the product to go through the manufacturing cycle was clearly the villain of the piece.

Technology/Automation can be ineffective

To continue to compete, some manufacturers then started to focus on the excessive time and cost required by the manufacturing process cycle. To reduce cycle time, many companies initially relied on new technology and automation. Although technology and automation can have a role in the new cycle time-focused approach, it is an expensive and often ineffective place to start.

Simplify and eliminate

One aim of the CTM concept is to encourage business to simplify then- automate existing processes - to eliminate waste or non-essential activities. The reality is that as many as 90 percent of the existing activities are non-essential and can be eliminated. This elimination of non-essential process time usually creates a one-time working capital reduction and a recurring reduction of the cost of working capital. This frees up credit or cash and will help to release the scarce and expensive resources required eventually to further reduce cycle time, purchase new technology, reduce loans, or fund new research and development

Cycle time down - Quality up - Costs down

As soon as most manufacturers focused on the cycle time of the business processes, they could more clearly see the waste associated with changeovers, quality defects, process control, factory layout, machine downtime and scheduling. They soon realized they could not only dramatically reduce the Make/Ship loop cycle time, but also with this focus and inherent need to improve overall quality, reduce the previously hidden costs of manufacturing.

Reduce working capital

When cycle time was reduced, operating CASH $$ was released from the inventory and Overhead/operating accounts in the business. This is now recognized as a prime ingredient for a healthy, more robust business in the 1990's.

It's not just applicable to the manufacturing process

As the manufacturing cycle time started to decrease, it became apparent that the cycle time for processing a customer's purchase order into manufacturing was almost greater than the time it took to manufacture the product. This was not surprising because in the traditional environment of long manufacturing cycle time, there is no incentive to rush the customer order paperwork through. It will only sit in the queue until manufacturing is ready for it.

An example from one client company, a manufacturer of printed circuit boards, illustrates the point. The customer expectation for delivery time was running at 15 days. However, it was established that up to 10 days was absorbed in just processing the sales order through order entry.

This certainly contributed to the poor overall delivery record that the company was experiencing at that time. The true value-added processing time for a typical customer order was discovered to be only 20 minutes. By focusing and reorganizing the order entry tasks, the problem was easily resolved. In addition, the morale improved significantly because the sales people did not have to spend frustrating time explaining to customers why some of their orders were not even started yet.

More exposure!

As overall manufacturing cycle time is reduced towards its competitive level, corporations are already finding that the cycle time for processing the customer's purchase order from the sales person, or distributor, to the factory order point may be greater than the cycle time it takes to manufacture the product! At the other end of the process, because of distance and logistics, the cycle time to move through a global product distribution network is often many times longer than the value adding manufacturing cycle time.

Everybody has to join the get-fit club!

While reducing the cycle time in the Make/Ship loop is the logical place to start, reducing this loop's cycle time in isolation may not be enough to satisfy future customer demands. The other loops in the business must become the next focus for improvement.

Who's Next?...

The Make/Ship loop is one component of a complex interrelationship. Minimizing this portion of the business cycle time in isolation is like crossing the Atlantic on the Concorde at supersonic speed, and then travelling to and from the airport by mule train. In your business, as the scenario unfolds, the bulk of inventory reduction opportunity will move outside manufacturing. This is where future opportunities for further cost and quality service improvements will be. The method of cycle time measurement used in manufacturing is just as applicable to Supply, Distribution, New Product Introduction, and even the Strategic Planning loops. It uncovers startling information about just how much cycle time these processes are entitled too, and leads to creative action to optimize each loop in the total business cycle.

For many corporations, the Make/Ship loop has been the best starting point to focus their cycle time reductions and has resulted in drastic improvements in manufacturing cycle times.

It's got to be a group effort!

The case for reduction in manufacturing cycle times is obviously very clear. But if they are the only group involved in this effort, the inventory inertia will move into the distribution or supply network. Manufacturing will continue to be isolated from customer demand because it is guarded by sales forecasts which are driven by distribution inventory levels. Worse still, with this inertia in the system and the effect of time delays, any sudden change in demand will cause a bow wave of successive over and under production. This is disruptive, costly and does not fully serve the customer.

Remember the customer!

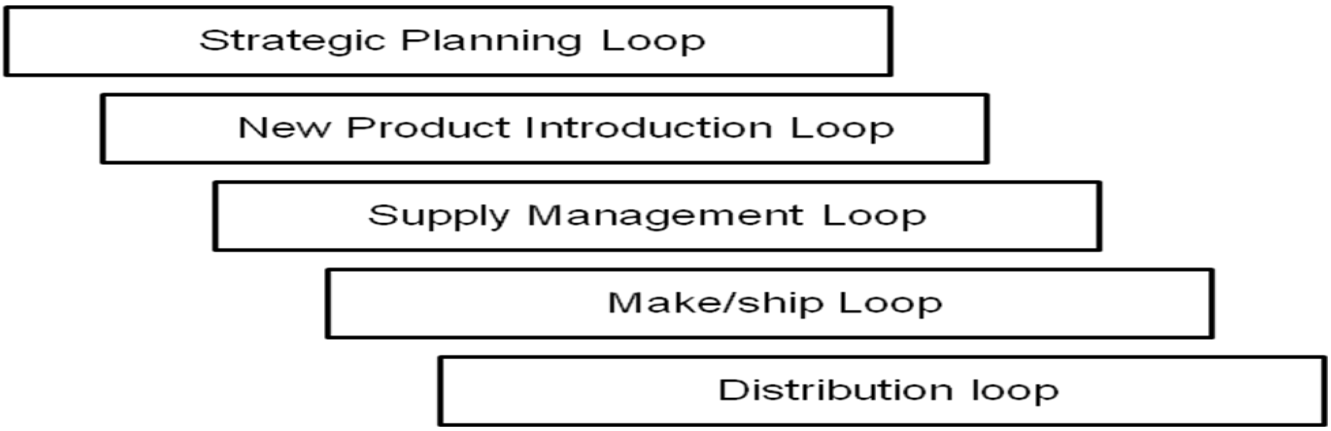
As competition to be a world class organization continues to increase, customer expectations will also continue to increase for both improved service quality and overall cost. A significant part of service will be to deliver in the shortest possible cycle time in all of the 5 loops. That is, the minimum time from when a customer expresses a need for the product, until that need is satisfied and payment

received for that product or service. To achieve this level of customer satisfaction, the total cycle time has to be always less than customer expectation. A narrow focus on just the manufacturing cycle time will just not be good enough.

For existing products, the customer expectation will be to experience a delivery cycle time that is at least equal to and better still, less than expectation.

The integration and partnership of the 3 loops (Make/Ship, Distribution, and Supply) is the only way to meet this customer expectation on a consistent basis.

We will now look at the other 2 loops that must assist with the partnership to satisfy the customer.



The Distribution Loop

The complexities associated with the Distribution loop vary from business to business. Some organizations have complex distribution networks; others have simple ones. In all companies, however, the customer order or forecast starts the process.

Get close to the customer..... that's the game!

The customer order may go through a separate distributor or directly into the manufacturing loop. The issue is not only how many hands the order goes through, but what essential role these hands play in the process and how long the process takes. For example, distributors may not be providing timely sales information because they are using the batch order- point method of signaling their needs. This can delay arrival of the information to the manufacturing process for several days. Some companies have taken advantage of computer networking systems to provide sales order information to the Make/Ship loop on a more regular basis to close couple the demand from the end customer. There are significant benefits to reducing cycle time in distribution systems. As much as 50 percent reduction in traditional distribution cycle time can be achieved. The resulting simplified process provides reduced inventories, improves the quality of service, and reduces general sales order expenses and associated customer support labor costs.

A very visual example

A dramatic example of shortening the manufacturing and distribution cycle time is now apparent in the eyeglass retail industry. By locating the lens grinding facilities and assembly operations right in their stores, the retailers have reduced their business cycle time to about an hour, as the commercial says. They have no inventories to track, negligible administration costs, and a better shot at guaranteed customer satisfaction. In addition, they have capitalized on this phenomenal cycle time advantage in their advertising.

Customers won't wait and don't care!

When a customer walks in to any distributor and the product he or she wants is on the shelf, there can be immediate service. The customer has no awareness that it may take several weeks for its equivalent replacement to work its way through the distribution pipeline. This approach is fine for a high usage generic product, but as soon as there are wide variations in product mix and features, the inventory situation becomes an administrative headache. The extent of re-configuration control, obsolete stock, even the need for regional depots and added cost of premium freight, depends entirely on the cycle time from the factory to the distributor.

Complex becomes easy!

In one client company, a manufacturer of liquid controls, marketing were able to forecast with great accuracy the total number of controls needed each month, but the quantity of each of the many and complex configurations was totally by guess and led to massive inventory swings from excess to out-of-stock with consequent loss of sales. By reducing the distribution cycle time and, of course, the manufacturing cycle time, the swings were reduced to a manageable level and the business became far more responsive to the customer needs.

Because cycle time reduction stimulates the simplification of all processes, the leverage from a reduction in distribution cycle time creates even greater reductions in inventory carrying costs, configuration and stock control and other distribution support costs. Savings can also be expected in general sales order expense and the associated labor cost. The timeliness and accuracy of customer delivery confirmation alone can make the distribution cycle time reduction effort worthwhile.

Distribution strategies will vary...

Obviously, the limitations will be on the delivery distances and the trade-off between centralized or localized manufacturing and distribution strategies will vary from business to business and product to product. For example, strawberries don't grow everywhere in the world and shipping them fresh long distances, although expensive, may be effective and still good business. However, cake making can be performed anywhere for a price, even in the store! Both items go extremely well together in the customers' view but may have vastly different distribution strategies. One thing is for sure.... The customer wants that strawberry shortcake fresh and now!

<u>The Supply Loop</u>

Although the Supply loop is a significant contributor to the total business cycle time, most companies have been powerless to directly force suppliers to reduce their cycle times. Only large manufacturers, such as the automotive giants, have had enough clout to insist that their material
be delivered just-in-time. Even then, most suppliers did not take the necessary measures to reduce their own internal cycle time.

Most suppliers responded by maintaining a fully stocked warehouse to feed the daily demand and tried to pass the added cost on to the end user- customer. This bizarre version of JTT clearly increased the supplier's cost of doing business.

Until suppliers have developed their own programs for reducing internal cycle time, the objective for most manufacturers will be to ensure the stability of material deliveries by encouraging the supplier's efforts to improve quality. Reliable sources of material will enable both suppliers and manufacturers to predict lower safety stock levels more accurately and therefore will reduce the risk of shutting down the manufacturing process. Unfortunately, this approach has proved effective only for standard-use raw materials and components for which there is an unchanging demand. For custom-made out-sourced parts with intrinsically longer lead times, the supplier-customer has had to rely mainly on the accuracy of the sales forecast. The longer the forecasts, the greater the potential for error. Supply partnership and supply cycle time is the breakthrough! By contrast, reducing the internal cycle time of the supplier pays off and is the real answer, because it reduces the length of the forecast and therefore improves its accuracy. As well, the supplier, if in partnership with the manufacturer, can better develop his own raw material forecasts, decreasing the potential for error.

The Supply loop must therefore be linked with the Make/Ship loop by linear processes and integrated product planning activities.

The supplier and manufacturer must harmonize their planning for capacity utilization because what they actively sell to the customer is capacity because without available capacity, they have to either not satisfy the customer or pre-build inventory.

Better more capacity than more inventory!.,.
In fact, once the savings of inventory reduction are realized, the savings can be traded back for more output capacity through investment in capital and technology.

When the Supply, Make/Ship and Distribution loops are integrated together and form a single linearized short cycle supply of available capacity to serve the customer, then great competitive advantage for supporting the customer with existing products is possible.

The correct credentials
The other outcome of this integration will be a natural rationalization of this 3 loop chain. The supplier will want to focus the available capacity on fewer manufacturing customers. The manufacturer will want to focus the supply management energies on fewer suppliers. The distributors will want fewer manufacturing nodes to coordinate, so a natural rationalized
partnership should be built up to utilize the real output of this linear capacity across the 3 loops.

This rationalization and partnership trend will force some shake-down in many industries that are over capacity. Only the organizations that can be solid partners in this new 3 loop team will survive!

Industrial standards for performance and compliance, ISO 9000, etc. are now beginning to stress the need for operating attributes such as an improved business cycle time approach and continuous improvement, etc as outlined here. So future potential team members will need the correct credentials.

The term getting closer to the customer now makes sense, and now becomes possible when there are fewer non-value added steps in the loops.

The key word is partnership and joint-management of these 3 loops in the total supply chain!

The New Product Introduction Loop

Improving the 3 cycle time loops for existing products improves the existing operations and products. What about the new generation of products? Suppose the competition is consistently first in the market with a new product. Who will get most of the future business? It is important
to reduce the New Product Introduction (NPI) cycle time, and also integrate that loop with the other loops.

In this loop, it's going to continue to get tougher and in most markets and industries the temperature is definitely rising. Staying competitive with yesterday's products will be difficult, if not impossible. However, being first or best with a new product in the 1990's may mean developing a new product in weeks, not years. To succeed, therefore, many corporations will have to dramatically reduce their New Product Introduction (NPI)

cycle time while continuing to consistently and profitably meet customer expectations for price, quality and functionality.

Traditions will have to go!
The traditional NPI approach assumed that responsibility for new products rested firmly with research and development (sometimes called design or product engineering).
In the same era that hosted that approach, marketing was typically perceived as fickle or unable to reach decisions on new product plans. It either was forced to respond to short-term sales opportunities on a hit-or-miss basis or, if it identified a larger opportunity, had trouble developing
an accurate specification for the new product for R&D. The process was also complicated by the lengthy time required to get a commitment of funds from senior management.

The result from this worst case scenario was a long cycle time for development and final closure on a new product plan.

Key to success...
As product life cycles continue to decrease, the key to success will be to integrate new product strategies, research, development and launch activities — into one effective short-cycle capability that can respond consistently to ever-increasing market demands.

The successful organization in the 1990's will be structured either formally or informally into multi-functional product teams with market segmentation by product family to aggressively attack these new product and market opportunities. The product-team approach amplifies the concept of multi-functional linearization and so short cycle time to market will be a bi-product.

Let's talk DFM...
The universal language of these product teams and this loop in the business will be the Design For Manufacturability (DFM) methodology to communicate the requirements and balance of cultural trust between the many cross-functional departments involved in this loop.

DFM is a methodology that ensures that overall product performance is integrated with the capability to not just manufacture the product but to support the product through all facets of the total business process.

The NPI Loop is integrated with the other 3 Loops (Supply, Make/Ship, Distribution) through the ability these other loops have to provide team input and to consistently provide future manufacturing processes, new materials from partnered suppliers and distribution requirements, etc. early enough in the NPI loop to assist the product teams to integrate the DFM requirements and beat the competition.

The Strategic Planning loop

This loop is probably the least effectively managed of all loops. This is not because of a lack of skill or knowledge, but because the high financial returns to be gained from improving this loop's cycle time are not well understood by most organizations.

Because of the long cycle times in the other 4 loops, the ineffectiveness of the cycle time in this loop does not get exposed.

This loop, as defined earlier, is where the company's strategic planning is undertaken.
All businesses have undertaken at least one of these eight strategies:
grow or shrink
acquire or divest
integrate or separate
develop or liquidate

What if? or If only ....
If only strategies could be developed more timely or faster, both the corporation and the customer would benefit. Too often, however, this loop is encumbered by size, politics, economics and legal and financial inertia; all of which add cycle time and tend to be non-value-adding.

This lethargic image of senior management (who are responsible ultimately for strategy) is the main criticism of the leadership team in most organizations. Reducing or segmenting the size and flattening the organizational structure may help, but the culture for decision-making had
better be time-based or most strategies will remain just what if!

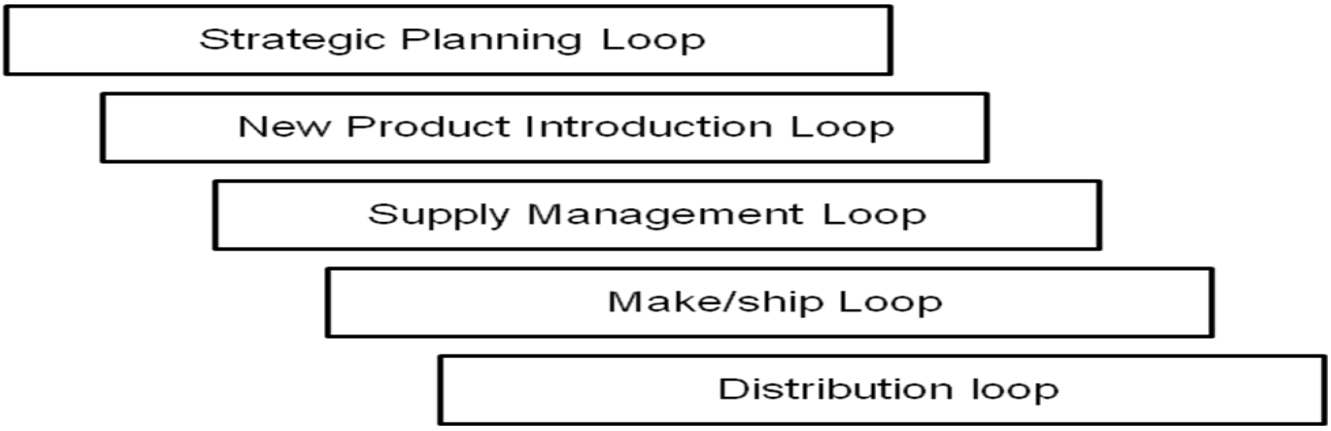
You know it's not easy. ...
Most businesses have two problems to overcome: First, they lack the methodology and processes necessary to shorten the cycle time in this loop. Second, reducing business cycle time in this loop is perceived at all levels as risky, disruptive, emotionally wearing and the processes are rarely practiced. As a result, reductions in the cycle time of this loop become less compelling. However, organizations must improve in this loop and gain more confidence in operating this loop effectively!

A short Strategic Planning loop will entitle the organization to perform this loop more often; perhaps 4 times a year or even more! Not just once per year to set annual budgets. In fact, the goal should be an ongoing, and as needed, continuing update to the strategic plan when the business
situation demands a rapid but still well-planned and communicated change in direction.

A short Strategic Planning loop also ensures that all five loops will be forced to be more responsive and this leadership will install continuous cycle time improvement into the corporate culture. It also enables senior managers of large companies to be entrepreneurial and to increase
company profits, because they will be able to seize market opportunities faster, with less risk and smaller working capital investment. Neither a best-in-class Supplier/Make-Ship/Distribution capability nor a world-class NPI capability assures overall business success. To exploit
the benefits provided by these other four loops, you must also have a short cycle time Strategic Planning loop as integral to the business strategies!

Many books and articles have been written on the correct way to develop plans in this loop. Some even hint on how to improve the cycle time. Few (if any) expose this loop as the prime mover for total business cycle time improvement. Fancy words such as synergy and market share and capital contribution are used. Rarely, however, is the overall business cycle time labeled as either an area for strategic improvement or a parameter to be coordinated through the strategic planning process.

We are talking survival!
As stated by Northey and Southway in the Industry Week article the Cycle Time Advantage, the corporation that can eliminate red tape and minimize the time required to make and execute decisions will be able to survive in the 1990's. Companies that cannot meet these demands will not make it into the next century.



Integrating the 5 Business Loops

The total success for most businesses in the future will require both the improvement and the integration of all five cycle time loops

In fact, all 5 loops can be improved independently and in parallel, but must be finally integrated across all 5 loops to achieve the total business improvements.

There are normally three sequential thrusts to the integration of the 5 loops:

1. Integrating the Supply, Make/Ship, and Distribution loops

Then 2. Integrating the New Product Introduction loop

Then 3. Integrating the Strategic Planning loop

After focusing on the impediments and non-essential activities in the Make/Ship loop, further impediments and waste in the Supply and Distribution loops are discovered. Similarly, as these loops become integrated, pressure mounts to improve and integrate the New Product
Introduction (NPI) and Strategic Planning loops with the other three loops.

Summary

Today, many companies are having difficulty meeting customer expectations, let alone exceeding them. The demand for shorter delivery times and wider variety will continue to increase. Action by competitors to satisfy this need will increase the pressure. Cycle time reduction is the strategy for releasing the stranglehold. The following quote from George Stalk's article Time The Next Source of Competitive Advantage in Harvard Business Review makes the point quite bluntly:

Strategies based on the cycle of flexible manufacturing, rapid response, expanding variety and increasing innovation are time-based Factories are close to the customers they serve. Organization structures enable fast responses rather than just low costs and control.
Companies concentrate on reducing, if not eliminating, delays and using their response advantages to attract the most profitable customers.

Unfortunately, many companies have not even started to reduce their total business cycle times. The result is that not only are they denied short New Product Development and Strategic Planning cycle times, but they are failing to meet rising customer expectations for shorter delivery times, higher quality and wider product variety. The only way to keep up is to improve and integrate the Supply, Make/Ship, Distribution, New Product Introduction and Strategic Planning loops, into one Total Business Cycle Time Loop that is highly competitive.

Make a start...

Cycle time reduction in manufacturing is an excellent starting point. The symptoms are obvious and the tools for improvement are readily available. However, it must be the start of a global company strategy to reduce the total business cycle time and the utilization of overall working capital.

Such a strategy can create a realignment of the whole organization to a compelling purpose. A common goal which can bridge the barriers between departments. To redirect the creative energies to achieve competitive superiority.

The advantages of one total short-cycle-time business loop are clear:

It provides flexibility and agility.
It enables the company to respond promptly to customer requests and future markets.
It ensures quick delivery of high-quality, low-cost products, present and future.

In other words, managing business by cycle time is essential.

Time is the source of competitive advantage!

Note; This paper is an extract from the book **CYCLE TIME MANAGEMENT** - ***The Fast Track To Time-Based Productivity Improvement*** by **Nigel Southway of NEXUS CONSULTING SERVICE.**

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