TIME-BASED COMPETITION

Like competition itself, competitive advantage is a constantly moving target. The best competitors, the most successful ones, know how to keep moving, and always stay on the cutting edge and ahead in the competitive race. Today, *time* is often emphasised as the strategic weapon that allows companies to attain that position.

> "Today, time is on the cutting edge. The ways leading companies manage time -- in production, in new product development and introduction, in sales and distribution -- represents the most powerful new sources of competitive advantage."
>
> *- George Stalk - Boston Consulting Group*

In fact, as a strategic weapon, time is the equivalent of money, productivity, and quality, even innovation. Managing time has enabled top Japanese companies not only to reduce their costs but also to offer broad product lines, cover more market segments, and upgrade the technological sophistication of their products. These companies are time-based competitors.

What is Time-Based Competition?

Time-based competition (TBC) is defined as a strategy for the development of a sustainable competitive advantage, characterised by three major traits. First, it deals with only those lead-time areas that are most important to the customer. Second, these reductions in lead-time derive from the removal of waste from the processes involved. Third, these lead-time reductions must be achieved through system analysis and attack of the underlying processes; they must not be product driven. In such environments, TBC must be a strategy, which achieves reductions in lead time through changes in the processes and structures used to design, manufacture and deliver products for its customers.

Surprisingly, and contrary to many initial assumptions, competing on time is simply not achieved by doing things more quickly. As mentioned above, the removal of activities, which do not add value, provide the largest opportunity for time reductions. Examples of such activities include: inspections, material handling, inventories, waiting, and rework.

TBC is not a theoretical concept; it is something that many firms are now actively pursuing. These firms are pursuing TBC because it offers them advantages, which their competitors are finding difficult to match or surpass.

These manufacturers, incorporating time-based competition (TBC) into their businesses today, include:

- Chrysler
- Ford
- General Electric
- General Motors
- Hewlett Packard
- Honda
- Intel
- Motorola
- Procter & Gamble
- Toyota

Today's time-oriented companies compete with flexible manufacturing and rapid-response systems, expanding variety and increasing innovation. Companies concentrate on reducing, if not eliminating, delays and using their response advantages to attract the most profitable, and therefore attractive, customers. For these leading competitors, as listed above, time has become the overarching measurement of performance. By reducing the consumption of time in every aspect of the business, these companies also reduce costs, improve quality, and work more closely with their suppliers and customers.

Time-Based Competition - Its Evolution

By the beginning of this decade, manufacturers were faced a decision: find a way to hold off capable competitors or fear losing market share and valuable customers. Now, more than halfway through the 1990s, many manufacturers have opted for the former. The key to survival, as they are finding, is competition based on time. The cost-conscious factory schedules large batch runs of product to minimise the cost of changeovers, or set-ups. Large-batch manufacturing creates sizeable inventory buffers between workstations and long lead times on the shop floor. However, if a company could reduce the non-value added activities in the set-up process, they could use the flexibility generated to utilise shorter batch runs, which creates less inventory and allows quicker response time to customer demands.

In hundreds of companies, the movement toward just-in-time manufacturing has smashed the conventional beliefs about trade-offs because as JIT processes were

implemented, both response times and quality improved in parallel. The power of a time-based strategy is that, by focusing on speed, a company develops world-class quality and the flexibility to deliver a wider variety of products and services without the burden of increased costs.

These firms have all seen dramatic inventory and space reductions, but the greatest benefits have been in increased response time, improved quality, and the flexibility in manufacturing to add product variety without the additional cost. As will be discussed following, similar approaches to non-manufacturing operations beyond the factory's walls can have powerful effects on a company's value chain. By transferring to a JIT approach, it is possible to achieve dramatic reductions in new product development time, engineering, and the paper-flow processes that characterise customer service operations. The goal is not time reduction in manufacturing alone but compression of the total time required to deliver products or services to customers.

Implementing a Time-Based Strategy - JIT is Step One

It has been suggested that Just-in-Time (JIT) was perhaps the first indication of time-based competition. In other words, time-based competition represents a logical evolution from earlier stages. Time-based competition is the extension of JIT principles into every facet of the product delivery cycle from research and development through marketing and product distribution.

The successful manufacturing firms will be "learning organisations" that excel at two things: (1) develop JIT manufacturing skills, and (2) extend the JIT concepts learned in manufacturing throughout the organisation. That is, to truly benefit from JIT, a company not only must implement it on the factory floor but, as explained earlier, also must apply the concepts to new product development, order entry, customer service, and distribution.

Industry observers are now beginning to realise that quick response to customer demand is one of the major benefits of JIT. Time, or speed, is the cornerstone of this manufacturing philosophy. Reduced inventory is a benefit of implementing time-emphasised initiatives.

A full understanding of the power of JIT requires viewing JIT as a process for time compression. This perspective usually requires a fundamental rethinking of the traditional manufacturing function to free it from a dependence on large batch processing.

Time-Based Competition - Beyond Price and Quality

In the past, manufacturers have successfully competed based on cost, quality, innovation or any combination of the above. But during the last decade, the rules of the game have changed. Many companies have found that simply having the lowest price and the best quality were not enough to ensure profitability and survival.

> "All the things that were vital to our long-term competitiveness had one thing in common: *time*, …emphasising time instead of money means rethinking every aspect of the business."
>
> *- Roy Merrills, President, Northern Telecom International*

Japanese organisations, as with many of the recent trends in manufacturing, seem to be adopting time-based strategies ahead of the rest of the world. Competitive pressures are such that companies are looking to time as a vehicle to become competitive. They have been the first to achieve this, therefore, enabling them to gain new business by entering new markets, often in the Western world. Only this time, some U.S. and European manufacturers appear to be paying attention and are quickly implementing time-based strategies themselves.

Manufacturing: Time-Based v. Traditional

For the most part, time-based manufacturing policies and practices differ from those of traditional manufacturing along three key dimensions: size of production runs, organisation of process components, and the complexity of scheduling procedures.

When it comes to lot sizing, for instance, *traditional* factories attempt to maximise production runs while *time-based* manufacturers try to shorten their production runs as much as possible. The thinking behind this is actually very simple and proves fundamental to competitive success. Reduced run sizes mean more frequent production of the complete mix of products and faster response to customer demands. To remain competitive in this approach, a manufacturer must work towards short changeover time, which provides flexibility to the entire manufacturing process.

> "Speed and quality are not a trade-off. Speed is a component of quality -- one of the things we must deliver to satisfy customers."
>
> *- Dean Cassell, Vice President of Product Integrity at Grumman Corporation*

Factory layout also contributes to time-based competitive advantage. *Traditional* factories are usually organised by process technology centres. For example, metal goods manufacturers organise their factories into shearing, punching, and braking departments.

Systematically, parts move from one process technology centre to the next. Each step consumes valuable time as parts wait to move, then move, then wait to be used in the next step. In a traditional manufacturing system, products usually receive value for only .05% to 2.5% of the time that they are in the factory. The majority of the time products sit waiting for something value-added to occur. In comparison, *time-based* factories are organised by product. To minimise handling and moving of parts, the manufacturing functions for a component or a product are as close together as possible. Parts move from one activity to the next with little or no delay. Because the production process eliminates the need to pile parts, they flow quickly and efficiently through the factory.

In *traditional* factories, scheduling is also a source of delay and waste. Most traditional factories use central scheduling that requires sophisticated materials resource planning and shop floor control systems. Even though these systems are advanced, they still waste time. This is evident as work orders typically flow to the factory floor on a monthly or weekly basis. In the meantime, parts sit idle, requiring space and capital resources. In time-based factories, local scheduling enables employees to make more production control decisions on the factory floor, without the time-consuming loop back to management for approval.

Moreover, the combination of the product-oriented layout of the factory and local scheduling makes the total production process run more smoothly. Once a part starts through the production run, many of the requirements between manufacturing steps are purely automatic and require no intermediate scheduling.

The differences between traditional and time-based factories add up. Flexible factories enjoy big advantages in both productivity and time: labour productivity in time-based factories can be as much as 200% higher than in conventional plants; time-based factories can respond eight to ten times faster than traditional factories. Flexible production means significant improvements in labour and net-asset productivity. These, in turn, yield reductions of up to 20% overall costs and increases in growth for much less investment.

Competing on Time - Beyond Manufacturing

As explained above, the operations of a manufacturer provide opportunities for achieving a competitive advantage. However, such an advantage can be nullified or handed back to the competitor, if the same organisation does not incorporate time-based initiatives throughout the other functions of the operations. The concept of time as a competitive weapon rests on the reduction of time-to-market, which is defined as the elapsed time between product definition and product availability.

Sales and Distribution It is well documented that, in decades past, the factory and its warehouses accounted for roughly one-half of the system's time. In today's

environment, the factory accounts for one-third to one-half of the total time - often the most visible portion of time. But other parts of the system are just as important, for example, sales and distribution consume as much time as the functions of manufacturing.

Track records indicate that Japanese companies cleared hurdles with gains in efficiencies in their manufacturing process, yet gave it back elsewhere. They were finding that inefficient sales and distribution operations undercut the benefits of their flexible manufacturing systems. In its most simple form, these companies were struggling with closing sales, transmitting the orders to the factory, getting the order scheduled, and delivering the end product to the customer. Just as the manufacturing process can be broken down by process and activities not adding value can be isolated and eliminated, the sales and distribution is capable of similar analysis. By concentrating on the flow of information, and building the process on only value enhancing activities, a manufacturer can reduce cycle time and install efficiency in the sales and distribution function. The results of this will mean having the opportunity to utilise more accurate forecasts due to their time horizon being shorter. In addition, companies will also enjoy lower overall costs and a more satisfied customer.

Innovation With the generation of new products driving strategic advantages in the manufacturing industry, the ability to introduce new concepts to the market faster than competitors allows for the opportunity to gain and retain market share. In addition, and common with many initiatives in the manufacturing process, the Japanese are establishing the pace and forcing Western competition to innovate based on time or suffer.

To accomplish their fast-paced innovation, leading Japanese manufacturers have introduced a series of organisational techniques that precisely parallel their approach to flexible manufacturing:

- In manufacturing, the Japanese stress short production runs and small lot sizes. In innovation, they favour smaller increments of improvement in new products, but introduce them more often - as opposed to the Western thought process of achieving more significant improvements made less often.

- In the organisation of product development work, the Japanese use factory cells that are cross-functional teams. Most Western new product development activity is carried out by functional centres.

- In the scheduling of work, Japanese factories stress local responsibility, just as product development scheduling is decentralised. The Western approach to both requires centralising scheduling, plotting, and tracking.

Strategy The possibility of establishing a competitive advantage based on response time provides new opportunities for strategic achievements. Traditionally, at most companies, strategic choices concentrate and often limited to three options:

- Seeking coexistence with competitors. This choice is seldom stable, and for obvious reasons. It is not often that competitors co-operate with this strategy and share the target market.

- Retreating in the face of competition. Although this is not the optimal choice, it often prevails. Looking to define their niche in the market, many companies undertake initiatives to consolidate plants, focus their operations, outsource, divest businesses, and/or pull out of existing markets.

- Attacking, whether direct or indirect. The direct attack involves the classic confrontation - cut price and add capacity, creating head-on competition. On the other hand, the indirect attack requires a more surprise tactic.

Of the three options, only an attack creates the opportunity for real growth. Direct attack demands superior resources; it is always expensive and potentially disastrous. Indirect attack promises the most gain for the least cost; however, the success rate is a concern. Time-based strategy offers a powerful new approach for successful indirect attacks against larger, established competitors.

Case Study – Procter & Gamble

Procter & Gamble has long been the global leader in the marketing of packaged consumer products. P&G's goal has always been simple: each product should hold the largest market share in its product category. However, in the late 1980s, dominance in this area was challenged as consumers perceived P&G as being too slow in responding to the customer. In response, P&G moved to make the firm a time-based competitor by creating a new system of category management. In this system, the category manager became the coach of a team to guide the launching or repositioning of a product. Besides focused internal efforts, P&G also worked closely with retailers to take time out of the distribution link in the chain. By focusing on time and the customer, P&G successfully restructured its production and distribution systems and reasserted its dominance in many product segments. The company claimed the leading market share position in twenty-one product categories.

Case Study – Chrysler Corporation

In response to pressure imposed by Japanese automobile manufacturers, Chrysler has made strides to reduce its own new product development and introduction cycles. Chrysler has achieved success in reducing time in the design/development cycle by

utilising product development teams staffed with members from product engineering, manufacturing, marketing, and purchasing. Not only were team members selected from different functions within the company, but some qualified members were recruited from the Chrysler's supplier base. Suppliers selected as product development team members were not just suppliers, but evolved into real business partners. The firm shaved the development-cycle time required to bring a new car model to market by 25 percent, from five years down to three and a half years, and cut development costs by 30 percent in the process.

Case Study – Allen Bradley

The Allen-Bradley Company, a division of Rockwell, has demonstrated how a traditional manufacturer can be transformed and revitalised through a time-compression strategy. The Milwaukee-based business initiated a major effort to capture a larger share of the industrial controls and industrial automation market. The firm redesigned its contractor facility as par of a strategic plan to capture a higher share of the world market for electrical contractors. The plan called for a high-volume, flexible facility that could receive, manufacture, and ship orders within twenty-four hours. Success was experienced and Allen-Bradley attained the lead in the global marketplace. In addition, the cost per unit dropped by 40% and product variations were expanded from 125 to more than six hundred. The return on assets reached five times the level possible with traditional manufacturing and quality level did not suffer. The reject rate runs only twenty units per million. The resurgence of Allen-Bradley demonstrates what, in the basic contractor and relay market, can be achieved through time-focused initiatives.

In conclusion, time-based competition has caused remarkable changes on the factory floor, in production design rooms, and in distribution channels. Many U.S. firms recognise that in today's markets, the speed of response to customer demands is a key competitive advantage. Their firms have worked to diminish there manufacturing lead times and new product development cycles, resulting in a more flexible enterprise and ability to obtain and maintain a competitive advantage in manufacturing.

Bibliography

1. Blackburn, Joseph. *"Time-Based Competition: White-Collar Activities."* Business Horizons, July 1992.

2. Blackburn, Joseph. *"The Time Factor."* National Productivity Review, September 22, 1990.

3. Carter, Phillip L. *"Identifying the Basic Process Strategies for Time-Based Competition."* Production & Inventory Management Journal, First Quarter 1995.

4. Gordon, Jack. *"Time-Based Competition."* Training, January 1994.

5. Handfield, Robert B. *"The Role of Materials Management in Developing Time-Based Competition."* International Journal of Purchasing & Materials Management, Winter 1993.

6. Inman, R. Anthony. *"Time-Based Competition: Challenges for Industrial Purchasing."* Industrial Management, March/April 1992.

7. Kumar, Ashok. *"A Methodology for Assessing Time-Based Competitive Advantage of Manufacturing Firms."* International Journal of Operations & Production Management, 1995.

8. Meredith, Jack R. *"Enhancing Competitiveness Through the New Market Value Equation."* International Journal of Operations & Production Management, 1994.

9. Richardson, Helen J. *"Make Time an Ally."* Transportation & Distribution, July 1995.

10. Schaenzer, Brian. *"The Crunch: Time-Based Competition Means Moving Beyond Price and Quality."* American Metal Market, November 15, 1995.

11. Sheridan, John H. *"Racing Against Time."* Industry Week, June 17, 1991.

12. Stalk, George Jr.*" Japan's Dark Side of Time."* Harvard Business Review, July/August 1993.

13. Tersine, Richard J. *"Lead-Time Reduction: The Search for Competitive Advantage."* International Journal of Operations & Production Management, 1995.

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