



Logistics Association of Australia Ltd

TIME-BASED LOGISTICS: THEORY FROM MICHIGAN STATE UNIVERSITY

The following is the fifth in the series of excellent articles from Emma Stringer, winner of the Logistics Development Award 1999 sponsored by CHEP Australia and supported by Morgan & Banks.

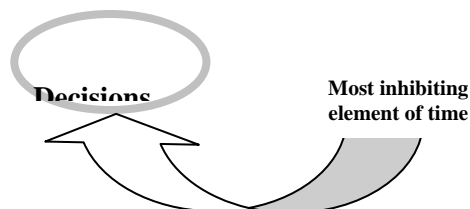
During my visit to the US and Canada for the Logistics Association of Australia, I visited Michigan State University, which is recognised for their excellent supply chain management faculty. The university invited me to attend a seminar which they were conducting for a large global firm.

During this seminar, I attended an interesting lecture on Time-Based Logistics. The lecture was conducted by Dr. Don Bowersox, a leader in supply chain management theory. (Dr. Bowersox was the co-author of the feature article on the cover page of last month's issue).

According to Dr Bowersox, time consists of three dimensions – process, information and decisions. Time in logistics is influenced by these three dimensions – for example, the efficiency of a firms goods retrieval process, the accuracy and relevance of the information used to conduct business, and the speed at which decisions can be made.

The 3 dimensions of time:

Process



Dr Bowersox claims that firms have the most trouble with decision-making – for many firms it is hard to get approval within time-frames. Dr. Bowersox commented that he did not know why this is so, firms should be able to

overcome this, and the ones that do not take much time in decision-making appear to be more responsive to time.

I agree with Dr. Bowersox on this issue; of the firms which I visited, the most entrepreneurial and innovative ones had their own autonomous teams, even with their own IT professionals assigned to the team to ensure their visions became reality.

Driving firms to become competitive through the exploitation of time is an ultimate goal:

The ultimate goal with time-based logistics: Learning to do more and more with less and less until you are doing everything with nothing.

This is obviously a fair struggle, but it serves as a good guideline to gain the most value out of time.

Why is time so valuable?

Time is one of the most important resources a firm has. It is not re-usable, once it is gone, it is gone. Firms have only one opportunity to use time, so it is essential that they get things done right, first time. Dr Bowersox described three important aspects of time from a logistics perspective – the financial aspects of time, forecasting, and synchronisation.

Financial Aspects of Time

There are three ways time can affect a firm's bottom line:

These are three measures which can be used to monitor how effectively your firm is exploiting time:

1) **Cash-to-cash cycle:**

This is the time it takes a firm to move from money spent to money collected. Naturally, it is best for a firm to make this timeframe as small as possible

2) **Dwell-time reduction**

World-class firms are beginning to realise the importance of their ability to create maximum utilisation out of their capital outlays. For example, it is in a firm's greatest interest to actively use an asset rather than leave it idle for the greatest amount of time, so that productivity is enhanced and the benefits of maximum utilisation are transferred to the customer.

3) **Free cash spin**

This concept was developed by Ernst and Young, and involves liberation of capital in order to reduce incremental costs, such as the costs of credit.

Forecasting or guessing?

Next to the financial aspects of time, time also has an important contribution to the process of forecasting. Dr Bowersox criticised the use of the term of forecasting, and instead stated that it should rather have been called "guessing". He stated that firms often rely too heavily on forecasts, stating that even the latest technology cannot predict demand. According to Dr. Bowersox, studies have shown that a simple moving average has been the most effective forecasting tool – even more effective than exponential smoothing.

Dr. Bowersox blamed the inaccuracy of forecasting on its reliance on consistency. All system failures create the most variances – operational errors make the most impacts and these are not included in forecasts. Forecasting is built on anticipation, and who wants to anticipate system failures or late deliveries?

Challenging this anticipatory model of forecasting is the responsive supply chain. In this model, forecasting collaborates with players in the system, and it is a firm's objective to create products which a customer needs as late as possible. Dr Bowersox called this model the postponement model. The motto of this motto is "never do today what you can put off 'til tomorrow".

Being as responsive as possible to immediate needs can make firms more responsive. Naturally, being so responsive to time-based demand requires firms to have the three important dimensions of time outlined at the beginning of this article – process, information and decision making.

Synchronisation and speed

Within such a responsive supply chain, it is important for firms to recognise the difference between synchronisation and speed. While it is good for a firm to be fast and responsive, they must also be supported by other firms in the supply chain. Otherwise, they could be plagued by the symptom of "hurry up and wait", whereby firms are responsive to their roles in the supply chain, yet have to wait for other partners to respond too.

For example, it's not good enough to have fast transport. A firm needs to meet it quickly and be ready to unpack the load and so on. This involves synchronisation and speed. According to Dr Bowersox, the worst thing a firm can do is stop something in motion and start it again later.

In order to achieve synchronisation and speed, a firm can have:

Objective	How
A controlled operating environment	

Cycle time compression:	shorten cycle times
Point-in-time performance:	which measures how many times a process is perfectly performed e.g. How many times does it come to the cross dock on time?
Zero Defect (Perfect) Execution:	such as transport being there every day, as agreed.
Channel inventory visibility:	all inventory is tracked real-time, meaning that there are no surprises as to where the inventory is
Immaculate recovery:	If mistakes do occur, the recovery is spectacular so that adversity is turned into advantage. An example of this is telling a customer in advance that you have a problem and tell them how you are going to tackle it. If spectacular recoveries are not performed, customers are likely to leave when the supplier is not performing as expected.

If a firm supports their core competencies with these dimensions of time, they may achieve time-based, responsive logistical excellence. Research from the University of Michigan, as illustrated in the lecture which I attended concluded that firms must therefore:

- Ensure that all three dimensions of time are effectively coordinated
- Minimise aspects of time which will affect your bottom line:
 - a. cash-to-cash cycle
 - b. dwell time reduction
 - c. free-cash spin
- Maintain a responsive supply chain by adopting an attitude of "postponement"
- Ensure you have synchronisation as well as speed.

If you would like any more information about any of the issues I have raised in this article, I would be happy to help. You can email me at: emmastringer@hotmail.com