

**AXIS Z FAST LOGIC  
A THREE DIMENSIONAL MODEL  
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**ABSTRACT**

FAST diagrams have long been used in a multidimensional format using levels of indenture to describe different levels of perspective. However all of the models that have been traditionally used are two dimensional in nature.

In developing FAST models for processes I have found that using **“WHAT?”** as a third dimension solves some parodies that I have observed. At the same time, this third dimension, using **“WHAT?”** and **“WHY?”** reflects the same type of logic produced by the **“HOW?”** and **“WHY?”** of traditional FAST.

This paper will set the ground rules for adding a third dimension to FAST diagrams and will present a practical application of using the technique. The possibility of additional dimensional criteria will be introduced for future development.

**TRADITIONAL FAST**

The traditional FAST approaches have limited the logic parameters to **“How”**, **“Why”** and **“When”**. These dimensional facets work well for many situations and

applications. By changing the focus of the FAST logic from the maker or builder to the customer or user, **“Customer -User”** FAST has evolved as a valuable approach in looking at a product or facility from a different perspective.

Time has also been used as another component by creating a parallel time line along the bottom of the FAST Diagram. The time line can be used to define a sequence or a real time schedule. The time line feature of this aspect of FAST is why many people think that it is very similar to a CPM chart or other scheduling approaches. Indeed, I have found that if you rotate a FAST diagram 90 degrees counter clockwise and extend the time line to the right you end up with a very good planning and scheduling chart.

**OBSERVATIONS**

While developing FAST diagrams for a large number of projects I have found that different FAST diagrams can be put together for different purposes on the same project. In many cases I found that some of the same functions would appear in the different diagrams. On a Coast Guard relocation project, the team developed an operational FAST diagram that led to the basic **“Mission Requirements”** at the extreme left

of the diagram (basic functions). Later, as a result of having discussed many of the administrative activities of the particular command, I put together an Administrative FAST diagram, which ended up with the same basic functions that defined the mission. While it could be argued that this is the result of the "level of indenture", I felt that there was something missing, because without the administration, the operation would fail.

In recent years I have been involved with a number of projects in the manufacturing arena. On many of these projects, the focus was on the process. The scope of these projects generally ended with the basic function of "Package Product" since that was the last step or output of the process.

Figure 1 shows a generic process FAST diagram for a the production of a polymer product.

I have also worked either separately or on a concurrent basis on business or operational aspects of the manufacturer. While these deal with the sales, marketing and delivery of products they are generally on a different track from the actual production of a product. Figure 2 represents a generic business FAST diagram for a manufacturer.

### INTEGRATION

I have seen and tried several methods of integrating the two different types of FAST diagrams. One approach, for which I have seen several variations is to identify, or create, a common function that appears in both diagrams and link them together using the vertical dimension, using the "same time as" or "when" parameter. Figure 3 shows the result of integrating the two FAST diagrams from Figures 1 and 2 in such a manner using "Deliver Product" as the common function.

I have tried to make this work for me many times, but I am not satisfied with the results and continually find what seem to be logic flaws in forcing integrated connections between diagrams in this manner.

### ADDING A DIMENSION

Go back and look at the FAST diagram in Figure 1. Change the "How" to "What" and see if it makes sense. Just ask the question: "What do you do to?" or "What is done to?"

The "WHY?" works the same as it did when the

left to right question was "HOW?".

Interesting?

I thought so.

Then I tried the integration using the third dimension of graphical representation, or the "Z" axis, for the process.

The result seems to make sense. This has led me to the hypothesis that we can use 'WHAT?' as another way to logically examine a condition or aspect of a problem or a project. As with the "HOW?" we can also ask the question "What else will do the job?" or "what else will work?".

### THE MODEL

Figure 4 represents the general concept that results from using "What" as a third dimension and placing it along the Z axis of a three dimensional coordinate system. At the center of the coordinates is the "PURPOSE", or the highest order function. Along the X axis all functions to the right answer the question "HOW?" and along the Z axis all functions answer the question "WHAT?" moving away from the X axis.

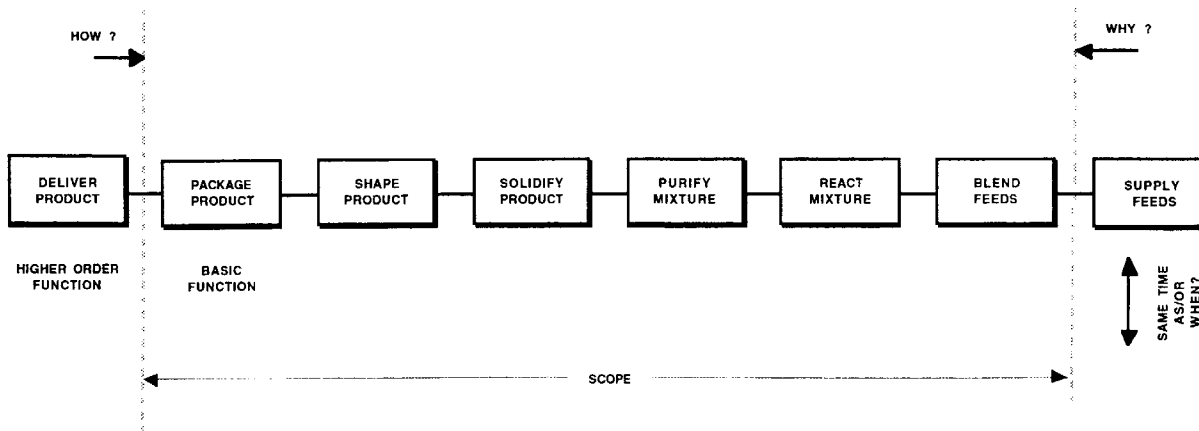
For the FAST diagrams previously shown the one from Figure 1 would be perpendicular to the X axis, parallelling the Z axis (shaded blocks). The FAST from figure 2 would be the one shown along the X axis (patterned blocks). The "PURPOSE" would be the highest order function "Generate Revenue". The point of connection between the two is the same as it was in Figure 3, "Deliver Product".

Consider now, an expansion of the "Generate Revenue" function along the Z axis. One could ask: "What else will "Generate Revenue?" Some answers might be: "Sell Widgets"; "Sell Services"; "Sell Technology"; "Sell Businesses"; "Invest Surplus"; "Reduce Cost".

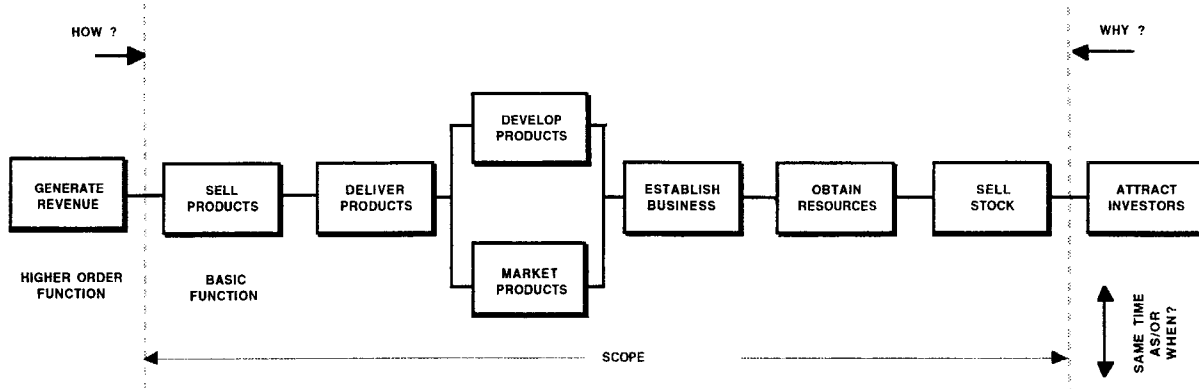
Notice that the "WHY?" question moves toward the center from the outer extremes of the X and Z axes. However, this does not appear to work when moving along the Y axis with the question "WHEN?".

### THE FUTURE

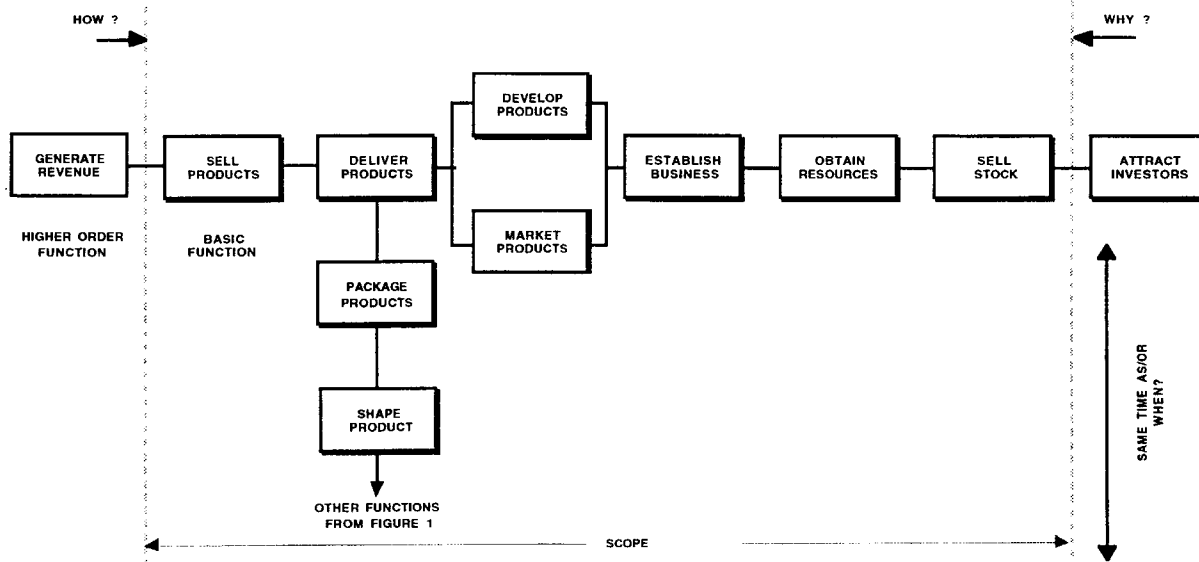
I am sure that there are many other ways to expand functions in the "WHAT?" direction. And the possibilities may be endless. Further development and



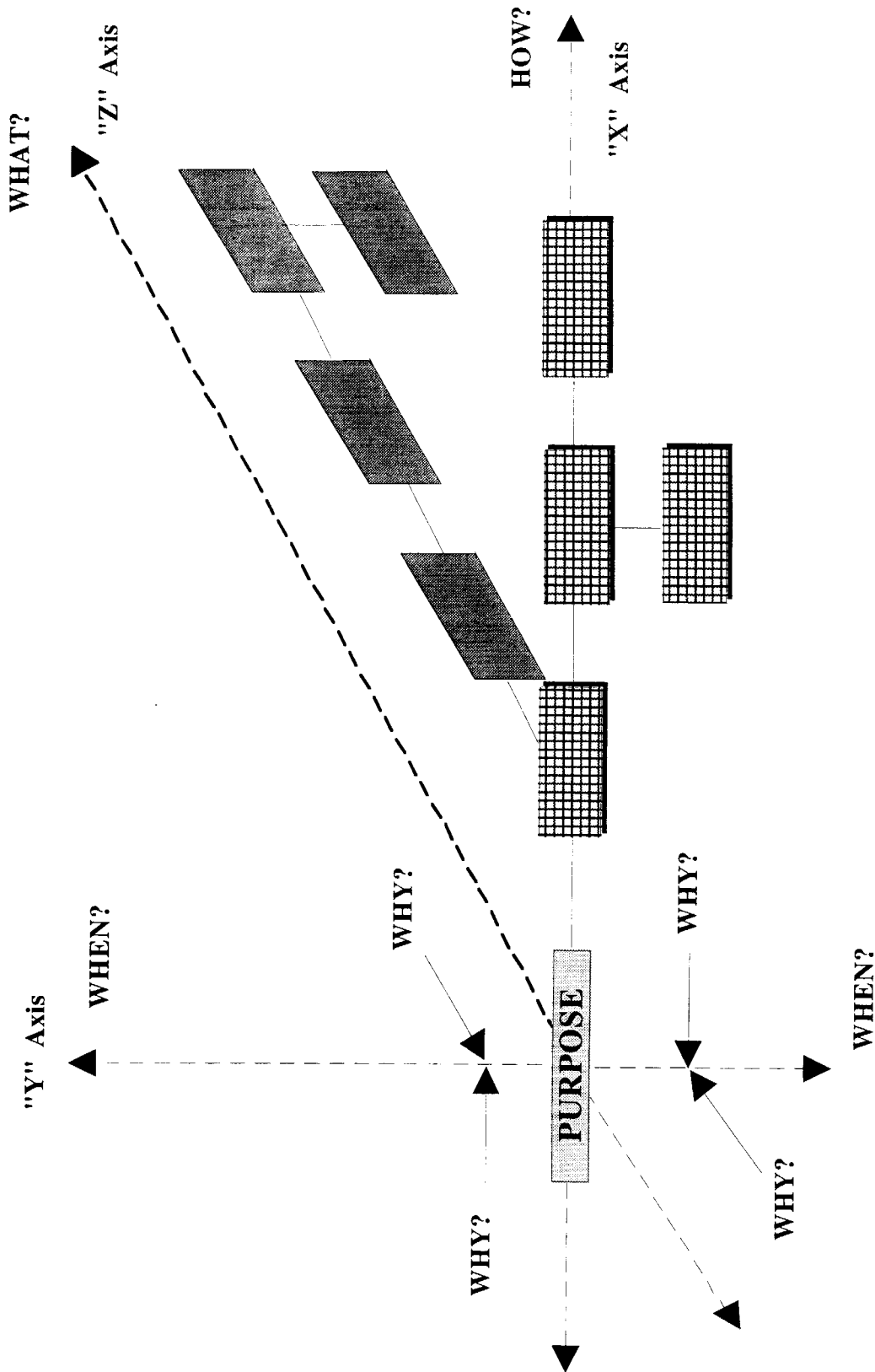
**FIGURE 1**  
**A GENERIC PROCESS FAST DIAGRAM**



**FIGURE 2**  
**A GENERIC BUSINESS FAST DIAGRAM**



**FIGURE 3**  
**A GENERIC INTEGRATED FAST DIAGRAM**



**FIGURE 4**  
**THREE DIMENSIONAL FAST DIAGRAM MODEL**

improvement of this concept needs to occur.

Opportunity abounds with all of the possible enhancements. Here are some key questions and issues that could be explored:

- ‡ Does the Y axis of the model need a different definition other than “**WHEN?**”.
- ‡ Should all questions moving toward the center, or convergent point, of the coordinate system answer the question “**WHY?**”.
- ‡ Time, or sequence, or schedule (or an other similar parameter) can be superimposed below the X and Y axes. Are there other parameters that can be added?
- ‡ Can we use “**WHO?**” or “**WHERE?**” along any of the primary axes. Can these dimensions be superimposed along the lower part of the Y axis, similar to a time frame.

This multidimensional approach may be best suited for development with a computer model. While I have been able to visualize some of the possible extrapolations of this concept, they are difficult to reflect in a visual model. It is possible that the visual model may more accurately be reflected by a model of the human brain. This would result in an infinite number of divergent axes spreading out from central locus in a spherical configuration.

The possibilities may truly be infinite especially if the premise that I proposed in 1995 (“*The ‘Theory Neuronal Group Selection’ Provides a Basis for the Value Methodology*” , 1995 Proceedings , SAVE International) is valid. In that paper I suggested that the reason that FAST diagrams work so well is that they mirror physical as well as the logic structure and process of the mind.

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