

Symmetric SD Limited

Dynamic Modelling: An Introduction

1. What is Dynamic Modelling?

"Dynamic Modelling" is a technique for improving our ability to gain insight and understanding about our organisations built around the core concepts of Systems Thinking. It is a disciplined approach to defining a problem, determining the core elements, surfacing interrelationships, and unlocking thinking. It is complemented by a technology -- computer simulation -- which allows for rapid testing of ideas in an environment supportive of learning.

The approach is based on the fundamental concepts of Systems Thinking.

Any process can be viewed dynamically as a system, rather than statically as an aggregation of its parts. Processes are filled with interconnecting variables, which change over time and we need to come to grips with these if we are to truly understand them.

Because of these interconnections the elements of any system interact in such a way that it is almost impossible to really understand how it will behave when change occurs.

A key to thorough understanding of a system is bringing together and making explicit the mental models of those involved.

The Steps Involved.

There are four major steps involved in the dynamic modelling process:

1. Defining the real scope and nature of the issue

At this stage the approach translates these issues into patterns of behaviour that have occurred over time and draws out the various perspectives people have on the issue by getting them to develop hypotheses about the drivers of the behaviour.

2. Determining the elements that are core to the business

This begins by defining a high level map of key elements within the business which highlights the interrelationships among these elements.

3. Mapping the system dynamics by drawing feedback relationships

By drawing the feedback relationships we are beginning to gain some insight into what 's causing the system to behave the way it does. What factors are important and how do they actually impact upon performance.

4. Challenging management thinking

By converting the map into a simulation model people are able to test out their thinking, explore how the system would operate under a variety of conditions, make decisions and get feedback on the consequences of the decisions they have made.

2. How can it help?

'Dynamic Modelling' or 'Computer simulation' contributes to this process in four ways:

1. Mapping the System

Creating a "map" of the business with an icon-based language.

2. Modelling the behaviour of the system

Entering the data and assumptions that drive business performance.

3. Simulating business performance

Developing an interactive simulator that allows management to make decisions and see the results of their actions.

4. Communicating findings within the organisation

Developing a Learning Environment that blends core information, a simulation engine, and coaching to guide exploration of the issues and communicate major findings.