

1 The Management Framework

Introduction

The management framework is introduced. This comprises the common high level processes found in the four areas or domains on crowd management. The terminology and concepts described are: state, complexity, emergence, input/process/output, factor analysis and phase change. Using this framework assists the reader to understand the four domains described in the four sections and integrate the knowledge, theory, terminology and examples into a management system.

Complex

The writing illustrates a systems theory of event management. In this case it is process mapping under risk and complexity. The text describes the processes involved in each domain of security, medical, crowd management: inputs, processes, outputs. The processes are optimised by decision theory under uncertainty. Put in simpler terms, this means that the way to do things is made more efficient by making good decisions. But, often in events and crowds, you can never be certain. Decisions are mostly approximate or the best estimate. Another name for this is 'local optimisation'. One result of the complexity, such as found in crowds and events, is the emergence of states that cannot be predicted. An example is a children's party. Anyone who has been involved knows how quickly it can get out of hand. One minute everyone is sitting chatting and eating and then, in a flash, they are up running around. By that we mean an emergent state. It was impossible to predict exactly. You just know something will happen if you take your eyes off the children. You need to be able to react. The more experience you have the better you are at knowing how to minimise the chaos.

Example 1.1: Children's concert

In Bahrain there was a concert for children at night, when it is cool, in a very large tent. Over a thousand children were attending. Suddenly the lights went out due to a power failure. What would you do? How would you manage this situation. It is no good saying you would have 'backup' – you didn't. What exactly is the problem? How long do you have to solve it?

This experience, learning from mistakes, keeping the mistakes small, leaning from others in similar circumstances, becomes the basis of resilience. The domains of crowd management, security and health are all 'costs' to the event. Hence risks must be managed and the solutions optimised to minimise catastrophic or 'long tail' consequences.

Optimisation means finding the best solution to a problem. At the operations level, a person may not have all the information and they may be unsure of the result of any decision. But a decision must be made. Hence they need to make the best decision at the time. An example is a decision that must be made in a crowded place to close the entrance. Limited information is available, but the decision must be made.

A process is a series of tasks or actions. Event management as outlined in William O'Toole's *Events Feasibility and Development*, comprises a group of processes. Many of these process are found in project management. The *Project Management Body of Knowledge* describes these very well. The processes are intertwined. Although described as 'laneways' they, in fact, interact constantly and these interactions contribute to the complexity. For example the process of sponsorship interacts with marketing, which interacts with staging. To make it more confusing, these interactions are not one way. The staging process will interact with the sponsorship. Hence the management of this aspect of events is an excellent example of the complexity management theory.

Characteristics of complexity management

At a specific time the state of a crowd can be described by a number of characteristics. These can change and hence they can be called *variables*. One can describe a crowd as happy, quiet, discontented, for example. Other variables could be *size* such as the number of people or the area of

the event site and demographic characteristics. Listing the characteristics, as shown below, gives what we call the *state*.

A 'state' is the description of the variables or factors at a specific time – a term used in Markov Chains adapted to events. It can be expressed as a collection or matrix of variables, fixed in time. An example is describing a crowd with three variables: *mood*, *density* and *flow* for the purpose of crowd control decisions.

In technical terminology, a complex situation/system is characterised by:

- ◆ Innumerable linkage (affects) of tasks, interdependence.
- ◆ Inability to forecast using linear analysis.
- ◆ Ability of the situation to quickly amplify and dramatically change.
- ◆ Risks that are rare yet with catastrophic consequences (long tail risk).
- ◆ Uncertainty and the inability to assess the state transitions using statistics to assess the probability matrix.
- ◆ Unique state (expressed as a matrix): in events suppliers, site, theme, demographics, time-based situation.
- ◆ Emergent behaviour – i.e. new state factors, arising from, for example, the increase in the scale of the factors.

The management of crowds such as is found in events and festivals is an example of the application of the management of complexity. Traditional planning is initially used, however a crowd is a complex situation and a fixed plan works best when the crowd is compliant. More detail is found on this in Andrew Tartai's application of the Snowden's Cynefin Model to crowd management in Chapter 5. The event management team must take into account the triggers, the complexity, the emergent behaviour and the catastrophic risks. For example hostile attacks on crowds, such as terrorism, demonstrates that planning is necessary but not sufficient in the management of crowds. Every event management team now needs to understand complexity, decisions under uncertainty and long tail risks.