

Chapter 7 – ACTIONS, EFFECTS, AND CONSEQUENCES

INTRODUCTION

This chapter discusses those areas of the Reference Model covering Actions and their effects and consequences on the variables in the State(t). These areas are highlighted below in Figure 7-1.

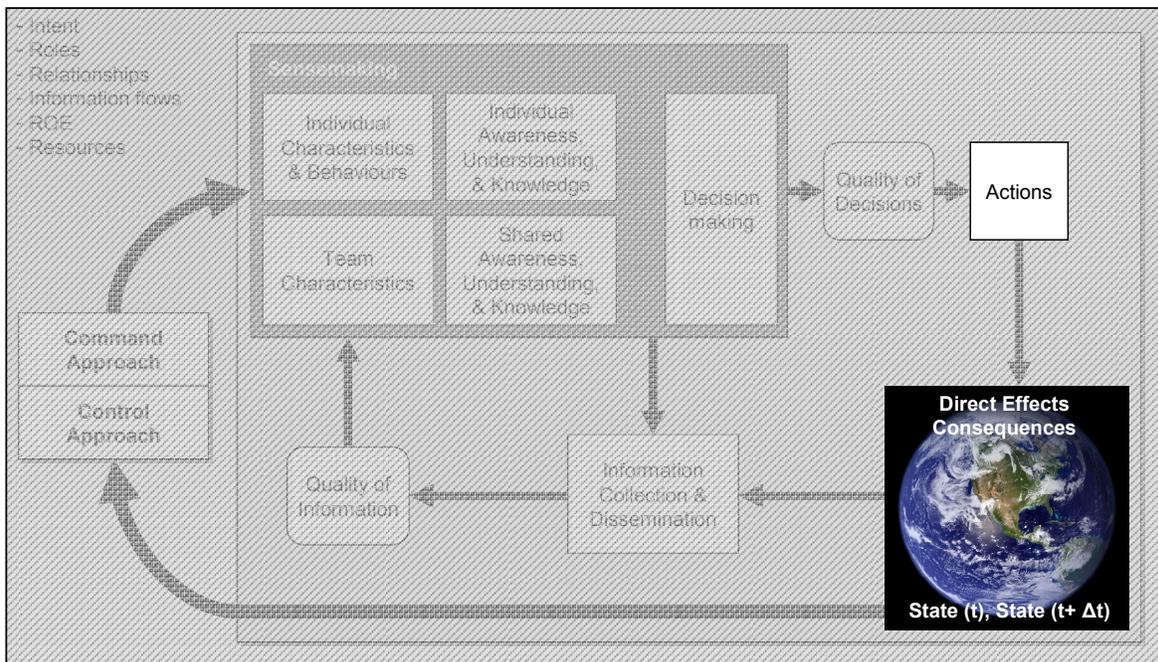


Figure 7-1: Overview of C2 Reference Model Highlighting Actions.

Because the main focus of the SAS-050 work was to develop the C2 aspects of the model, this area is less well developed than the rest. Also, because the C2 Conceptual Model is intended to be generic across different types of activity and context, it has not been appropriate to become too specific in the declaration and connection of actions and their effects or consequences.

The basic building blocks of the model are generic and applicable on all levels of scale. However, the focus of the effort was on the mission and force levels. In the development of the C2 Conceptual Model, it was conceived that C2 activities could be considered as the mechanisms by which the actions of a force are directed to fulfil a plan or satisfy intent. The variables listed under the heading “Actions” are:

Action Accuracy: Extent to which actions executed are directed to the intended purpose.

Action Completeness: Extent to which actions executed encompass the full scope of the plan or order.

Action Consistency: Extent to which actions executed are consistent with actions in an earlier timeframe.

Action Correctness: Extent to which actions are executed without error.

Action Precision: Extent to which actions executed are precisely related to the intended purpose.

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Action Timeliness: Extent to which actions are executed at the time required by the plan or order (in the case of self-synchronizing forces the “plan” could be an ad hoc arrangement between peers).

Action Appropriateness: Extent to which actions executed are the appropriate ones to achieve the intended purpose.

Action Efficiency: Extent to which actions executed are efficient in the use of resources.

Action Synchronization: Purposeful arrangement of actions in time, space, and function.

Likelihood of Success: Probability of mission accomplishment.

These variables represent qualities of action and as such are called out in the Value View described in Chapter 8.

The direct effects and consequences of actions are represented in the C2 Reference Model in two ways. Firstly, actions may create a change in the state of the Situation in which C2 is operating and, secondly, they may create changes in the state of the Force under command. Variables describing each of these action impact areas are listed under the State(t) heading (the ‘(t)’ included to indicate the temporal dynamic nature of action and effects, which needs to be properly handled in any case-specific instantiation using the Reference Model as an input).

LINKS INTO (AND OUT OF) ACTION VARIABLES

The details of links to action variables can be found in Chapter 10-3. In general, the Action variables are influenced by Decision variables, which, in turn, are affected by variables from the Information, ITCB, and Knowledge areas. Action variables influence the Likelihood of Success variable, which is defined as the probability of mission success.

Because the Action variables are generic, without implication of the nature or target of the Action, it is not possible to express in the Reference Model explicit links from Actions to Effects, or to identify specific effect variables. However, such connections and identifications need to be made in any case-specific instantiation of a conceptual model based on the C2 Reference Model.

For example, the State(t) area contains variables labelled “Friendly Forces,” “Enemy Forces,” and “Neutral Forces.” Depending upon the nature of the actions taken at a specific time and by a specific agent within a particular case study, these variables will need to be replaced by more specific variables representing the critical aspects of how the forces under study impact other forces and actors.