

12TH ICCRTS  
"Adapting C2 to the 21st Century"

**Identifying And Assessing Appropriate System Architecture Options for  
Generic and Specific Mission Requirements**

Cognitive and Social Issues / Organizational Issues / C2 Metrics and Assessment

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## **Abstract**

This paper will describe the development of a method for the evaluation of alternative system architectures which are available for particular types of mission. The method is based upon the use of system attributes which are used to describe required capability, i.e. the so-called 'ilities'. Since these system attributes are not normally measurable directly, they are interpreted in terms of other secondary attributes and contributing factors which are more easily measured, in order to generate evaluation techniques for various systems. Many of these relevant factors are for 'soft' issues which are not necessarily measurable but for which rational subjective judgement can be applied. The approach does not separate out 'soft' from 'hard' issues – rather it recognises that the various attributes can be affected by factors from across the whole soft/hard spectrum.

In this paper, Combat Search And Rescue (CSAR) is used as the representative mission for which appropriate generic objectives can be set. In addition, a generic functional model has been produced for CSAR.

## **Additional Explanation Of Abstract**

The CSAR mission is set in a number of scenarios such that the detailed objectives of each specific mission can vary from the initial generic set and can be identified for each application. This leads to an awareness that differing levels of capability can be defined for these specific missions: this is interpreted as variations in weightings applied to the set of appropriate attributes and factors.

This approach characterises the 'demand' side of the assessment of suitable systems and the functionally based architectures which may underpin them.

At any time, some given resources or assets are made available to carry out a particular CSAR mission. These assets may or may not have the skills and competencies needed to carry out a particular mission. For a particular CSAR mission architecture various combinations of assets can be brought together to form a system to carry out the specific mission. In order to assess the suitability of the available system alternatives, they can be assessed in terms of the same attributes and factors as used above.

When matched against the mission 'demand' requirements an evaluation can be carried out to assess the suitability of a chosen system and to identify the optimum integration of available assets for a particular mission.

It is likely that, during a specific mission, circumstances may change or objectives may be altered. This approach can be used to re-assess the best use of assets in order accommodate the change in circumstances or to achieve the new mission objectives.