Getting Experts' Agreement in Strategic Planning[1]

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Abstract. This paper shows a way to treat the different and sometimes contradictory opinions from a group of experts to reach a global agreement about potential future scenarios in strategic planning. To achieve this objective we have worked on the development of a methodology and a software tool that permits the creation of possible future scenarios from individual opinions. The methodology and the software prototype have been validated with real case studies.

Keywords. Future scenarios, experts' agreement, strategic planning.

1 Introduction

The goal or this work is to obtain a technology which enables us to get experts' agreement about possible critical scenarios. The project includes the application of a specific methodology [1] for the construction of multi-agent systems, the use of agreement technologies [2] and the development of a software tool (HELP) [3].

2 A MAS-oriented approach

We have used the MECIMPLAN methodology [1] to solve the creation of future scenarios. The way in which we apply the methodology depends on a deep analysis of the results obtained at each step; the methodology is divided into two large phases. In the first phase, we study the planning system in detail (limitations, objectives and rules). In the second phase, we select different agents in order to construct a conceptual model (that will be translated into the proper computer language) and verify that our model behaves exactly as expected.

3 The conceptual MAS model and a real application

The experts will be consulted by using 'on line' questionnaires. The answers received from the human experts are treated with the aim of getting a common response that

[1] AT2012, 15-16 October 2012, Dubrovnik, Croatia.

represents the opinion of the whole group of experts. As a result of the application of MECIMPLAN, we have developed a conceptual model based on agents.

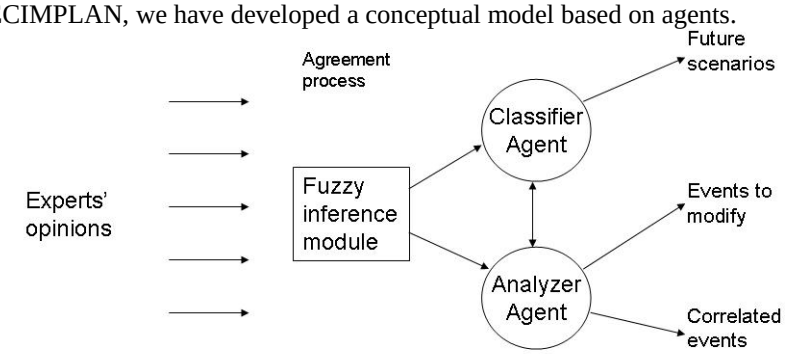

Fig. 1. Conceptual model

Fuzzy logic is used in order to facilitate the computational treatment of non-quantified responses. The Classifier agent and the Analyzer agent are respectively in charge of producing future scenarios or indicating which events should be modified to get an ideal scenario, as well as checking the relationship among events.

3.1 Case study: The future of the CSDP

The aim of this case study is to foresee the future of the Common Security and Defense Policy in Europe (CSDP) under the horizon of the year 2020. The work [3] has been recently developed by the Spanish Institute of Strategic Studies and Tecnalia.

4 Conclusions

This paper presents a new way to get experts' agreement different from statistical methods used in the Delphi method and Cross Impact Analysis [4]. The project has the following innovations: a new approach based on multi-agent systems and a software tool (HELP). The work has been developed to facilitate the process of converting experts' opinions in valuable information to envision critical future scenarios.

REFERENCES

1. Castillo, J.M. Una solución a la planificación de operaciones para la defensa basada en agentes inteligentes. Book. ISBN 978-84-9781-473-7 (2009).
2. Sierra, C., Botti, V., Ossowski, S.; Agreement Computing. KI 25(1): 57-61 (2011).
3. Castillo, J.M. An agent-based approach to envision the future. Proceedings of ISCRAM 2011. Lisbon (Portugal). (2011).
4. Linstone, H.A.; Turoff, M.; Delphi: A brief look backward and forward, Technol. Forecast. Soc. Change (2010), doi:10.1016/j.techfore.2010.09.011