

MIXED CONVERGENCE PATTERN FOR INTELLIGENCE NEGOTIATION SUPPORT SYSTEMS OF HIGH-TECH NETWORK ORGANIZATION

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Keywords: High-tech network organization, Intelligence negotiation support system, Mixed convergence pattern (MCP), Conflict resolution mechanism.

Abstract: According to the enterprise decision environment changes, negotiation conception and mode would be increasingly updated and deepened, which externally requires that intelligence decision method and network development technology is mutually combined. The paper summarizes domestic and foreign Intelligence Negotiation Support System (INSS) research and development, provides problem processing operation mechanism for network negotiation. Structure function and collaboration method based on Mixed Convergence Pattern (MCP) are pointed out, besides conflict resolution strategy schemes and operation rules for HTNO-INSS different execution states. It is concluded that scientific, visible and standard service for collaboration project in HTNO could be provided, as well as methods support for whole competitive power improvement in High-tech industry.

1 INTRODUCTION

Along with the global economic integration and knowledge economic dynamic development, the new technologies are superimposed reactions continuously, with the changes of business trading rules and economic technology cooperation forms (Kaklauskas et al., 2008). It is essential that high-tech enterprises oriented by innovation adjust strategies facing to the highly competitive environmental scenario. This adjustment is no longer the simple alliance, but the large-scale innovative cooperation with knowledge radial force in the domain of technology and production (Soneras, 2006). High-tech Network Organization (HTNO) is the lasting products of high-tech enterprise virtual business; the organizational mode reflects one community with unstructured and dynamic network, composed of different enterprises with the aims of mutual benefit, shared risks and extraordinary profit. Research on Negotiation Support System (NSS) stems in the late 1980s, it is decided as one branch

of Group Decision-making Support System. For scholars of all nations have different aspects in negotiation analysis of multi-type opinions of NSS cognitions. NSS is defined as software tools such as Research Briefs from Holsapple, Elliashberg, Alemi, Jelassi, Balakrishnan, Jones, Kersten (Ding and Li, 2002); NSS is the special Group Decision-making Support System for disagreement or controversy to assist negotiation partners such as Stedinger, Louucks, Thiessen (Tang and Meng, 2006); NSS has negotiation analysis and decision model functions and process support system such as Bellucci, Zeleznikow (Lecce and Amato, 2008). Despite some opinions, almost scholars could make NSS as the software support tools to improve negotiation efficiency and quality.

From the representativeness achievements, almost achievements in-depth study on remote INSS methods and theories, but there are some shortages. For instance, INSS only supports simple model for final resolution, when it faces to the complex negotiation projects and organizations, the

required, such sequence, parallel, selecting and iterative structure. Table. 1 could be signified as follows. Model object forms could be atomic models, or compound models, or expand models. Atomic model could be directly executed, without trying to make further the analysis; Compound model is coarse grain and reuse model consisting of Atomic model, with Atomic model attributes and relation operations among models; Expand model mains to evolution and development for Atomic model and Compound model.

Table 1: Executive pattern for negotiation events of HTNO-INSS.

Basis Pattern	Graphic Symbol	Pattern Explanations
sequence structure		$event_i$ is forerunner event, $event_j$ is Rear runner event.
parallel structure		$event_i$ and $event_j$ are branch event for parallel structure.
selecting structure		$event_i$ and $event_j$ are branch event for selecting structure
iterative structure		$event_i$ is the must-do executive event, $event_j$ is possible executive event.

Workflow Engine has three assignments in HTNO-INSS, consisting of corresponding assignment list produced, corresponding executive roles and resource list configured, corresponding assignment list updated. Active arrangements for assignment list are the executive process based on assignment explanation and transfer^[6]. The mode of expression is as follows,

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When int i=list.head; i<list.length; i=list.movenext
IF list[i].state=true // If pending conflict status is ready
Then Push (list[i]) // We interpose conflict event to ready queue
Else Listi.sign=1 // The command signifies conflict-issue visited
ENDIF
Judge(list[i]) // Dealing with the direct subsequent activities for conflict object, we mark the subsequent activities visited. After it is finished, the ready status would be deleted.

ENDWHEN

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Workflow Engine classifies, discerns and explains to interactive information during Agent communications, determines assignment executive

area and request based on HTNO roles, transfers negotiation decision-making model according to active status of business object, saves the analysis results of business activities, and renews corresponding assignment and resource list. Above all, executive expressions of business process are serial or parallel sequence by event and assignment interlaced.

C. Business Control and Management. Activity operation and control center is important for negotiation business process management, in charge of transferring ready activity from assignment list and collaborating with negotiation decision model, detecting and performance managing for executive activity. Operation control mains to the anomalous event treated, opportunely detects new conflict events, which inquires activity operative status, also gathers and analyzes for status data. In the whole working process of HTNO-INSS, we should guarantee that the activities are in operation status as many as possible to the best of our capability; business management depends on quantitative and qualitative knowledge in relative problem domain, realizing the reciprocity and intercommunion between negotiation expert experience and scenario knowledge, and then complete negotiation knowledge utilities and reasoning.

D. Problem Solving and Application. Problem solving and application are the results exemplification for business control and management, the solving schemes includes bargaining solution formed and process instance produced. Bargaining solving schemes is used for issue attribute value reaching an agreement of multi-Agent in HTNO, process instances are the protocols templates, cooperation rules and scenarios analyses formed during issue solving process, which provide experience information and knowledge for negotiation activities of relative conflict issues. Statement transformation and management take charge of recording operation status and mutual exchanging relationship; the goal status forming is the pivotal content for collaboration operation management.

4 COPYRIGHT FORM COMPLETION AND TRANSITION FOR MIXED CONVERGENCE PATTERN (MCP)

Statement and activity transitions among HTNO-INSS depend on individual Agent satisfaction degree to benefit schemes, and manager Agent collaborated capabilities. However, when group negotiation reaches an impasse, system maintains the original negotiation protocols, or adjusts invoking rules and constraint conditions for model objects. HTNO-INSS execution results have six forms, such as Waiting, Ready, Running, Quit, Aborted and Completed. Fig.2 shows relations of every expression forms in HTNO negotiation activity statement.

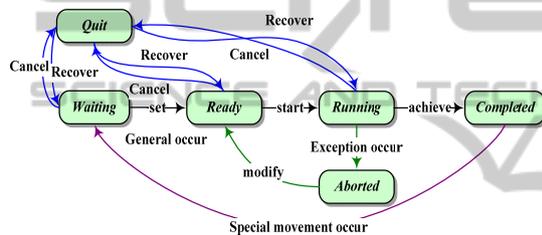


Figure 2: Activity transition status for HTNO-INSS.

Therefore, we could discover that INSS problem processing strategies are divided of three executive forms, according to negotiation events happening types and activities transition, the first type is regular events transition status, that is original status, ready state satisfying invoked conditions, activity operational status and the whole negotiation completed; the second type is anomalous event transition status, that is hanging up executive activity, amending ready state for renew exploring activity schedules, or the executive activity canceled by individual Agent, the current status resumed after system is handled. The third type is special event transition status, activity finishing state is reset to original statement by individual Agent, that is status parameters or participants altered, conflict-issue schemes amended.

5 CONCLUSIONS

HTNO-INSS is a man-machine interface system driven by Benefit-induced and Behavior-perceived Patterns, which could assist individual Agent to analyze pre-negotiation situation and prepare

tactically, deals with real-time data and information during mutual bargaining for forming conflict resolutions, and finally reaches scientifically operational schemes. Mixed Convergence Pattern (MCP) not only supply resolution technology theories and method tools for alliance management institution, creates fair, impartial and friendly decision-making environment for HTNO participants, gives full play to alliance governing Competency, guarantees system operational stationary and data transmission accuracy.

ACKNOWLEDGEMENTS

The research described here was supported by a grant from China Postdoctoral Science Foundation (Project No. 20090460877 and No. 201003414), Social Science and humanity of China Ministry of education (Project No.10YJC630037), Hei Longjiang Postdoctoral Science Foundation (Project No. LBH-Z09224). The Second author was partially supported by a grant (70971028G0102) from National Nature Science Foundation of China. I must express my thankfulness for their support.

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